ATTACHMENT 7

As Played in Court 05/10/23

Designation List Report

Shekel, Tomer   **2022-11-23**

Sonos Affirmatives	00:06:25
Google Counters	00:03:54
TOTAL RUN TIME	**00:10:19**

Documents linked to video:
T125

Shekel_T - As Played in Court 05/10/23

DESIGNATION	SOURCE	DURATION	ID
7:11 - 7:14	**Shekel, Tomer 2022-11-22**	00:00:15	Shekel_T.1
	7:11 Q. Hi, Mr. Shekel. Can you please state and		
	7:12 spell your name for the record, please.		
	7:13 A. My name is Tomer Shekel. T-O-M-E-R,		
	7:14 S-H-E-K-E-L.		
14:02 - 14:06	**Shekel, Tomer 2022-11-22**	00:00:26	Shekel_T.2
	14:02 Q. And when did you start working at Google?		
	14:03 A. I started working on October 2013.		
	14:04 Q. And what was your title when you started		
	14:05 working at Google?		
	14:06 A. I was a product manager.		
14:07 - 14:13	**Shekel, Tomer 2022-11-22**	00:00:38	Shekel_T.3
	14:07 Q. And how long did you hold that title?		
	14:08 A. Well, I -- I -- I'm still a product manager		
	14:09 in Google, so I'm still in the same type of work.		
	14:10 There's internal levels or -- kind of within it, like,		
	14:11 a product manager, senior product manager, and so		
	14:12 forth. And that aspect of the title, it changed, but		
	14:13 I'm still working as a product manager within Google.		
16:08 - 16:12	**Shekel, Tomer 2022-11-22**	00:00:27	Shekel_T.4
	16:08 Q. Which products did you work on during your		
	16:09 time as a product manager of that team?		
	16:10 A. One of the projects was Cast Audio.		
	16:11 Q. What other products?		
	16:12 A. Another project was Chromecast Audio.		
16:18 - 16:22	**Shekel, Tomer 2022-11-22**	00:00:20	Shekel_T.5
	16:18 Q. Any others?		
	16:19 A. I was involved in the Google Home product.		
	16:20 Q. Any others?		
	16:21 A. I was involved in the multi-room speaker		
	16:22 playback.		
17:01 - 17:02	**Shekel, Tomer 2022-11-22**	00:00:08	Shekel_T.19
	17:01 A. I was involved in Media Focus and Voice		
	17:02 Sessions product or feature.		
17:16 - 17:21	**Shekel, Tomer 2022-11-22**	00:00:28	Shekel_T.20
	17:16 Q. Did you work on any other products when you		
	17:17 were a product manager of that team?		
	17:18 A. Given, you know, my years there, and I was		

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DESIGNATION	SOURCE	DURATION	ID
	17:19　　basically a veteran, meaning for multiple years, it		
	17:20　　might be. It could have been that I worked with		
	17:21　　others, but I don't recall them right now.		
29:12 - 29:24	**Shekel, Tomer 2022-11-22**	00:01:12	Shekel_T.21
	29:12　Q.　What is the difference between Cast for Audio		
	29:13　　and Chromecast Audio?		
	29:14　A.　Cast for Audio is a program that is meant to		
	29:15　　bring the Google Cast technology -- that is the		
	29:16　　technology that Chromecast, for example, is using --		
	29:17　　to OEM devices, you know, speakers by third-party		
	29:18　　speaker manufacturers.		
	29:19　　Chromecast Audio is how the device we		
	29:20　　developed within Google that also has -- it's not a		
	29:21　　speaker. It's a device that connects into speakers,		
	29:22　　and also the -- use the same technology of Cast.		
	29:23　　There are other differences as well, but this		
	29:24　　is conceptually a high-level difference.		
42:02 - 42:03	**Shekel, Tomer 2022-11-22**	00:00:05	Shekel_T.24
	42:02　Q.　And what was your first interaction with		
	42:03　　Sonos as a company?		
42:04 - 42:08	**Shekel, Tomer 2022-11-22**	00:00:25	Shekel_T.27
	42:04　A.　I don't know if it was the first. I don't		
	42:05　　remember if it was the first. But one early		
	42:06　　interaction, at last, was prior to us meeting with		
	42:07　　them in the context of Cast for Audio.		
	42:08　Q.　Do you recall when that was?		
42:09 - 42:09	**Shekel, Tomer 2022-11-22**	00:00:05	Shekel_T.29
	42:09　A.　I -- I -- I think it was 2014.		
77:20 - 77:22	**Shekel, Tomer 2022-11-22**	00:00:20	Shekel_T.28
	77:20　A.　Yeah, it looks -- it looks -- it looks		
	77:21　　similar. I -- I'd -- I'd say it looks similar to		
	77:22　　maybe the presentation we presented to Sonos.		
78:07 - 78:22	**Shekel, Tomer 2022-11-22**	00:00:52	Shekel_T.25
	78:07　Q.　Can you turn to page 17 of this presentation,		
🔗 T125.17	78:08　　please.		
	78:09　A.　The -- the one named:		
	78:10　　"Multi Zone Groups - C4A Device<->Group		
	78:11　　relationship."		
	78:12　Q.　The page before.		

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DESIGNATION	SOURCE	DURATION	ID

78:13   A.   "Multi-Zone Groups."

78:14   Q.   Yes.

78:15   A.   Yes, I see the slide.

78:16   Q.   What was meant by the term "multi-zone

78:17   groups"?

78:18   A.   I was referring in multi-zone group to being

78:19   able to play music at the same time synchronously

78:20   across multiple zones or rooms. And there's a group

78:21   of speakers, so it's a Yukon speaker. So that will

78:22   actually, you know, support this functionality.

 Clear

| 91:05 - 91:10 | **Shekel, Tomer 2022-11-22** | 00:00:24 | Shekel_T.10 |

91:05   MR. GROSBY: Q. And when did Google develop

91:06   its own first-party multi-zone technology?

91:07   A.   During 2015.

91:08   Q.   So that was after -- that was after you

91:09   looked at other speaker manufacturers' implementations

91:10   of multi-zone technology; right?

| 91:12 - 91:21 | **Shekel, Tomer 2022-11-22** | 00:00:30 | Shekel_T.11 |

91:12   THE WITNESS: So I wouldn't say that I looked

91:13   at the implementation, but I used -- maybe I -- I

91:14   tried using multi-zone by few of the other

91:15   manufacturers.

91:16   So chronologically, at least for some of the

91:17   manufacturers, it happened before that we -- before we

91:18   launched it -- before we launched our own multi-room

91:19   solution.

91:20   MR. GROSBY: Q. And one of those was Sonos;

91:21   correct?

| 91:23 - 92:02 | **Shekel, Tomer 2022-11-22** | 00:00:17 | Shekel_T.12 |

91:23   THE WITNESS: We looked at Sonos and other

91:24   manufacturers' multi-room solution as part of our work

91:25   in Cast Audio, and that -- some of those looks or

92:01   trying those out happened before we launched our

92:02   multi-room solution.

| 98:13 - 98:20 | **Shekel, Tomer 2022-11-22** | 00:00:19 | Shekel_T.22 |

98:13   Q.   Could a user create a group of speakers while

98:14   music is playing on those speakers?

98:15   MR. JUDAH: You're talking about the Cast for

98:16   Audio time period?

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DESIGNATION	SOURCE	DURATION	ID
	98:17 MR. GROSBY: Yes. Same time period as this		
	98:18 conversation we've been having.		
	98:19 THE WITNESS: So can you repeat that again,		
	98:20 the question.		
98:21 - 98:22	**Shekel, Tomer 2022-11-22**	00:00:05	Shekel_T.13
	98:21 MR. GROSBY: Q. Could a user create a group		
	98:22 of speakers while music was playing on those speakers?		
98:24 - 99:11	**Shekel, Tomer 2022-11-22**	00:00:37	Shekel_T.14
	98:24 THE WITNESS: For just creating the group,		
	98:25 I'm assuming -- really, in fact, spec-wise, like, what		
	99:01 I defined, yes, you could create the group.		
	99:02 Regardless of the speaker playback status, you just		
	99:03 create a group. So they're now a part of another		
	99:04 group. But it does not matter, you know, if they are		
	99:05 playing right now or not in that group or any other		
	99:06 group, you know. But anyway, probably are not playing		
	99:07 that group, because he just created it. So regardless		
	99:08 of the playback status, you can create a group.		
	99:09 MR. GROSBY: Q. Would you say it's an		
	99:10 important feature for the music playback to not be		
	99:11 disturbed while you set up new groups?		
99:13 - 99:16	**Shekel, Tomer 2022-11-22**	00:00:10	Shekel_T.15
	99:13 THE WITNESS: In my opinion, if by setting a		
	99:14 group, you'll now be stopping the music a person		
	99:15 played, that would not be a great experience for that		
	99:16 user.		
109:11 - 109:13 🔗 T125.18.1	**Shekel, Tomer 2022-11-22**	00:00:12	Shekel_T.16
	109:11 Q. Okay. So turning back to slide 18 of		
	109:12 Exhibit 1255, would it be a poor user experience to		
	109:13 limit speakers to just one group?		
109:15 - 109:22	**Shekel, Tomer 2022-11-22**	00:00:21	Shekel_T.17
	109:15 THE WITNESS: In -- in our -- in our		
	109:16 approach, in the Google Cast approach, if we were to		
	109:17 have only option that every speaker can only be part		
	109:18 of one group, I -- I would think it's a -- it's a poor		
	109:19 user experience, yes.		
	109:20 MR. GROSBY: Q. Would it be a poor user		
	109:21 experience to kick speakers out of a prior group if		
	109:22 they're added to a new group?		

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DESIGNATION	SOURCE	DURATION	ID
109:24 - 110:05	**Shekel, Tomer 2022-11-22**	00:00:23	Shekel_T.18

	109:24	THE WITNESS: I feel -- or my opinion at that
	109:25	time was that that would not be a good experience for
	110:01	how Google Cast works, for the reasons I highlighted
	110:02	before when you asked me about the benefits and why we
✗ Clear	110:03	chose this one. So yes, that would not be a good
	110:04	experience, or it will be poor, maybe more
	110:05	specifically.

DESIGNATION	SOURCE	DURATION	ID
139:09 - 139:11	**Shekel, Tomer 2022-11-22**	00:00:09	Shekel_T.38

139:09	Q.	Did Google require users to download the
139:10		Google Home app onto users' smartphone devices in
139:11		order to set up and use Google speaker devices?

DESIGNATION	SOURCE	DURATION	ID
139:15 - 139:20	**Shekel, Tomer 2022-11-22**	00:00:27	Shekel_T.39

139:15	THE WITNESS: I don't know current status.
139:16	When I was working on the team, I'd say the Chromecast
139:17	or Chromecast audio as to Google devices, if it was a
139:18	Google -- if it's those two devices, you know, to set
139:19	it up, someone -- the person that wants to set it up
139:20	would need the Google Home app, you know.

DESIGNATION	SOURCE	DURATION	ID
140:03 - 140:04	**Shekel, Tomer 2022-11-22**	00:00:05	Shekel_T.40

| 140:03 | MR. GROSBY: Q. In order to create speaker |
| 140:04 | groups, is the Google Home app required? |

DESIGNATION	SOURCE	DURATION	ID
140:07 - 140:15	**Shekel, Tomer 2022-11-22**	00:00:39	Shekel_T.41

140:07	THE WITNESS: I don't know how it is today.
140:08	But when I was working on groups, if I want to say
140:09	Google Cast group or Cast technology group, I'm not
140:10	talking about any OEM groups that we discussed before,
140:11	you needed to have the Google Home app or the
140:12	Chromecast app or -- I don't remember the names as it
140:13	changed. You need to have an app that was used to set
140:14	up the -- the groups at that time when we launched
140:15	multi-room.

Sonos Affirmatives	00:06:25
Google Counters	00:03:54
TOTAL RUN TIME	**00:10:19**

📄 Documents linked to video:

T125

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Designation List Report

Pedro, Justin   **2022-07-07**

Sonos Affirmatives	00:22:40
TOTAL RUN TIME	**00:22:40**

Documents linked to video:

T42

T81

T84

Pedro_J - As Played in Court 05/10/23

DESIGNATION	SOURCE	DURATION	ID
9:07 - 9:13	**Pedro, Justin 2022-07-07**	00:00:22	Pedro_J.1

9:07	Q.	Good morning, Mr. Pedro. With that out
9:08		of the way, very nice to meet with you.
9:09	A.	Good morning.
9:10	Q.	Could you just start us off by stating
9:11		your full name and spelling it for the record?
9:12	A.	My full name is Justin Manuel Pedro.
9:13		J-U-S-T-I-N. M-A-N-U-E-L. P-E-D-R-O.

DESIGNATION	SOURCE	DURATION	ID
16:02 - 16:10	**Pedro, Justin 2022-07-07**	00:00:39	Pedro_J.2

16:02	Q.	Do you recall when -- what time frame you
16:03		were on the Google Home app team?
16:04	A.	Yes.
16:05	Q.	What was that time frame?
16:06	A.	Early October 2020 to late June 2022.
16:07	Q.	Okay. What was your role on the
16:08		Google Home app team?
16:09	A.	I was an engineering manager for an iOS
16:10		and Android development team.

DESIGNATION	SOURCE	DURATION	ID
17:18 - 17:20	**Pedro, Justin 2022-07-07**	00:00:09	Pedro_J.3

17:18	Did you perform any testing related to
17:19	the Google Home app yourself while you were on the
17:20	Google Home app team?

DESIGNATION	SOURCE	DURATION	ID
17:23 - 17:24	**Pedro, Justin 2022-07-07**	00:00:03	Pedro_J.4

17:23	THE DEPONENT: I would say I did perform
17:24	some testing.

DESIGNATION	SOURCE	DURATION	ID
18:24 - 19:03	**Pedro, Justin 2022-07-07**	00:00:16	Pedro_J.5

18:24	Q.	(By Mr. Shea) And so do I understand
18:25		correctly that for that kind of testing that --
19:01		that you engaged in, you would have installed a
19:02		Google Home app on a end user device in order to
19:03		conduct that testing?

DESIGNATION	SOURCE	DURATION	ID
19:06 - 19:11	**Pedro, Justin 2022-07-07**	00:00:22	Pedro_J.6

19:06		THE DEPONENT: Yes.
19:07	Q.	(By Mr. Shea) And then once -- with that
19:08		Google Home app installed on -- on it, on an end
19:09		user device, would you then have launched and run
19:10		the Google Home app on that end user device during
19:11		your testing?

Pedro_J - As Played in Court 05/10/23

DESIGNATION	SOURCE	DURATION	ID
19:14 - 19:14	**Pedro, Justin 2022-07-07**	00:00:01	Pedro_J.7
	19:14 THE DEPONENT: Yes.		
23:18 - 24:02	**Pedro, Justin 2022-07-07**	00:00:39	Pedro_J.8
🔗 T84.11.1	23:18 Q. Topic 1 of this subbullet (i) says "the		
	23:19 design and operation of the aforementioned 'speaker		
	23:20 group' Accused Functionality and source code that		
	23:21 facilitates the same."		
	23:22 Do you see that?		
	23:23 A. I do.		
	23:24 Q. Do you understand that Google has		
	23:25 designated you to testify on its behalf as it		
	24:01 relates to this topic and the Google Home app?		
✗ Clear	24:02 A. Yes, I do.		
44:02 - 44:03	**Pedro, Justin 2022-07-07**	00:00:07	Pedro_J.9
	44:02 Q. (By Mr. Shea) Does the Google Home app		
	44:03 allow a user to create a new speaker group?		
44:05 - 44:05	**Pedro, Justin 2022-07-07**	00:00:01	Pedro_J.10
	44:05 THE DEPONENT: Yes.		
44:20 - 44:22	**Pedro, Justin 2022-07-07**	00:00:09	Pedro_J.11
	44:20 Q. (By Mr. Shea) Does the Google Home app		
	44:21 allow a user to play back audio on a created		
	44:22 speaker group?		
44:24 - 44:24	**Pedro, Justin 2022-07-07**	00:00:01	Pedro_J.12
	44:24 THE DEPONENT: Yes.		
54:23 - 55:03	**Pedro, Justin 2022-07-07**	00:00:24	Pedro_J.13
	54:23 So -- so just as a couple quick		
	54:24 follow-ups then on what a speaker group is -- is.		
	54:25 First of all, is it accurate to say that		
	55:01 a speaker group is a grouping of -- of audio		
	55:02 players that is saved by a user in advance of -- of		
	55:03 using the speaker group to play back audio?		
55:06 - 55:09	**Pedro, Justin 2022-07-07**	00:00:26	Pedro_J.14
	55:06 THE DEPONENT: Actually, the -- I would		
	55:07 say that I'm not sure I would agree with the term		
	55:08 "saved," but I would say "created." Other than		
	55:09 that, "saved" is a -- somewhat of a vague term.		
57:04 - 57:08	**Pedro, Justin 2022-07-07**	00:00:13	Pedro_J.15
	57:04 Q. (By Mr. Shea) Okay. So maybe just so I		

DESIGNATION	SOURCE	DURATION	ID
	57:05 understand, like what -- when you hear the word		
	57:06 "saved," is -- is there different meanings that --		
	57:07 that you can think of as to what that term might		
	57:08 mean?		
57:11 - 57:19	**Pedro, Justin 2022-07-07**	00:00:55	Pedro_J.16
	57:11 THE DEPONENT: Saved can mean stored for		
	57:12 later recollection. Saved can also -- in this		
	57:13 particular case, may refer to the entire group or		
	57:14 may refer to just the name item, which I find also		
	57:15 ambiguous.		
	57:16 Q. (By Mr. Shea) Using the definition of --		
	57:17 of saved meaning stored for later recollection, is		
	57:18 it accurate to say that a speaker group after being		
	57:19 created is -- is thereafter saved?		
57:22 - 57:24	**Pedro, Justin 2022-07-07**	00:00:19	Pedro_J.17
	57:22 THE DEPONENT: The -- if -- and there is		
	57:23 still some ambiguity and -- there's still some		
	57:24 ambiguity and vagueness to that question.		
57:25 - 58:02	**Pedro, Justin 2022-07-07**	00:00:24	Pedro_J.18
	57:25 It -- there -- but the -- it -- there is		
	58:01 a set of entities which collectively form a speaker		
	58:02 group which are saved.		
58:07 - 58:10	**Pedro, Justin 2022-07-07**	00:00:13	Pedro_J.19
	58:07 So when you say "There's a set of		
	58:08 entities which" -- "which collectively form a		
	58:09 speaker group which are saved," can you elaborate		
	58:10 for me on -- on what you meant by that?		
58:13 - 58:16	**Pedro, Justin 2022-07-07**	00:00:27	Pedro_J.20
	58:13 THE DEPONENT: I mean that there are a		
	58:14 collection of records that collectively identify --		
	58:15 that collectively specify the information needed		
	58:16 for a speaker group, but it's not a single record.		
58:18 - 58:21	**Pedro, Justin 2022-07-07**	00:00:14	Pedro_J.21
	58:18 Well, focusing on that collection of		
	58:19 records, is it fair to say that those -- that		
	58:20 collection of records stores collectively the		
	58:21 speaker group for later recollection?		
58:24 - 58:24	**Pedro, Justin 2022-07-07**	00:00:02	Pedro_J.22

DESIGNATION	SOURCE		DURATION	ID
	58:24	THE DEPONENT: I would say, yes.		Pedro_J.22
59:04 - 59:06	**Pedro, Justin 2022-07-07**		00:00:16	Pedro_J.23
	59:04	Is it fair to say that a speaker group is		
	59:05	something that is predefined by a user in advance		
	59:06	of the user using that speaker group to play back?		
59:09 - 59:10	**Pedro, Justin 2022-07-07**		00:00:04	Pedro_J.24
	59:09	THE DEPONENT: The -- well, I'd say, in		
	59:10	all of the instances I can think of, yes.		
59:22 - 60:05	**Pedro, Justin 2022-07-07**		00:00:37	Pedro_J.25
	59:22	So what I'd now like to do is switch		
	59:23	over to -- to a new exhibit. So let me -- let me		
	59:24	put that into your share here.		
🔗 T42.1	59:25	And this is another one that's been		
	60:01	previously marked, which is Exhibit 42.		
	60:02	Q. (By Mr. Shea) So if I could have you		
	60:03	pull that up, and let me know when you have pulled		
	60:04	that up.		
	60:05	A. I pulled it up.		
64:07 - 64:09	**Pedro, Justin 2022-07-07**		00:00:11	Pedro_J.26
	64:07	Q. What does that "Play music" text		
	64:08	represent in -- in the interface of the Google Home		
	64:09	app?		
64:11 - 64:18	**Pedro, Justin 2022-07-07**		00:00:32	Pedro_J.27
	64:11	THE DEPONENT: That "Play music" is a		
	64:12	tappable action that will initiate the playing of a		
	64:13	song from the user's default music provider to that		
	64:14	device.		
	64:15	Q. (By Mr. Shea) And if you were to tap		
	64:16	that "Play music" text for one particular -- one of		
	64:17	the devices, would that device then play music on		
	64:18	its own?		
64:20 - 64:20	**Pedro, Justin 2022-07-07**		00:00:02	Pedro_J.28
	64:20	THE DEPONENT: Yes.		
101:23 - 102:01	**Pedro, Justin 2022-07-07**		00:00:12	Pedro_J.29
🔗 T42.4	101:23	If you navigate to the fourth page of		
	101:24	Exhibit 42, do you see there there's a set of two		
	101:25	screenshots for a screen called "Name this speaker		
	102:01	group"?		

Pedro_J - As Played in Court 05/10/23

DESIGNATION	SOURCE	DURATION	ID
102:03 - 102:03	**Pedro, Justin 2022-07-07**	00:00:02	Pedro_J.30
	102:03 THE DEPONENT: I do. I see that.		
102:19 - 102:21	**Pedro, Justin 2022-07-07**	00:00:08	Pedro_J.31
	102:19 Q. (By Mr. Shea) At a high level, can you		
	102:20 tell me what the purpose of this "Name this speaker		
	102:21 group" screen is?		
102:24 - 103:04	**Pedro, Justin 2022-07-07**	00:00:25	Pedro_J.32
	102:24 THE DEPONENT: The purpose of this screen		
	102:25 is to allow the user to type in descriptive text to		
	103:01 name -- disassociated with the speaker group that		
	103:02 will appear in -- in Cast-enabled applications		
	103:03 later. And then create -- actually create the		
	103:04 group.		
111:09 - 111:12	**Pedro, Justin 2022-07-07**	00:00:14	Pedro_J.33
	111:09 Q. (By Mr. Shea) What functions are		
	111:10 performed by the Google Home app after the user		
🔗 T42.4.1	111:11 hits "Save" on that save -- hits that "Save" button		
	111:12 on the "Name this speaker group" screen?		
111:15 - 111:18	**Pedro, Justin 2022-07-07**	00:00:15	Pedro_J.34
	111:15 THE DEPONENT: At a high level, the		
	111:16 Google Home app sends a message to each selected		
	111:17 device from the previous Google to flow and asks		
	111:18 them to join a group.		
118:05 - 118:06	**Pedro, Justin 2022-07-07**	00:00:10	Pedro_J.35
⊠ Clear	118:05 Q. (By Mr. Shea) Okay. So does a -- does		
	118:06 the Home app keep a cache of Cast devices?		
118:10 - 118:13	**Pedro, Justin 2022-07-07**	00:00:25	Pedro_J.36
	118:10 THE DEPONENT: The Google Home app keeps		
	118:11 a cache of devices that it is aware of.		
	118:12 Q. (By Mr. Shea) And does that cache on the		
	118:13 Google Home app include group information?		
118:16 - 118:16	**Pedro, Justin 2022-07-07**	00:00:01	Pedro_J.37
	118:16 THE DEPONENT: Yes.		
126:15 - 126:18	**Pedro, Justin 2022-07-07**	00:00:16	Pedro_J.38
	126:15 In terms of what is required in order to		
	126:16 create a new group, can you -- can you list for me		
	126:17 the -- the -- the pieces of data that -- that are		
	126:18 necessary in order for our group to be created?		

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DESIGNATION	SOURCE	DURATION	ID
126:22 - 126:25	**Pedro, Justin 2022-07-07**	00:00:13	Pedro_J.39

	126:22	THE DEPONENT: So I'd say the components
	126:23	that are needed to create a group are the -- the
	126:24	UUID, the group name, and then connections to the
	126:25	devices in question.

DESIGNATION	SOURCE	DURATION	ID
131:08 - 131:14	**Pedro, Justin 2022-07-07**	00:00:19	Pedro_J.40

	131:08	MR. SHEA: Okay. So -- so just for
	131:09	recordkeeping purposes, I'm going to mark
	131:10	source code pages 145 through 148, which are
	131:11	related to the GroupManager.JavaModule, as
	131:12	Exhibit 78.
	131:13	(Exhibit 78 was marked for identification
	131:14	by the court reporter and is attached hereto.)

DESIGNATION	SOURCE	DURATION	ID
131:15 - 131:17	**Pedro, Justin 2022-07-07**	00:00:18	Pedro_J.41

	131:15 Q.	(By Mr. Shea) And -- so maybe picking us
	131:16	up on line 181 of page 145, can you explain to us
	131:17	what that function CreateGroup there does?

DESIGNATION	SOURCE	DURATION	ID
131:20 - 131:24	**Pedro, Justin 2022-07-07**	00:00:16	Pedro_J.42

	131:20	THE DEPONENT: So this method is
	131:21	responsible for the -- sending the network messages
	131:22	to create the group along the different devices, or
	131:23	asking -- asking each device to join the group, to
	131:24	be more clear.

DESIGNATION	SOURCE	DURATION	ID
159:19 - 159:22	**Pedro, Justin 2022-07-07**	00:00:17	Pedro_J.43

	159:19	And -- and is it fair to say that in the
	159:20	example we've been looking at together, that at --
	159:21	by the end of that process, the Google Home app has
	159:22	caused a speaker group to be created?

DESIGNATION	SOURCE	DURATION	ID
160:01 - 160:01	**Pedro, Justin 2022-07-07**	00:00:02	Pedro_J.44

	160:01	THE DEPONENT: Sure. Yes.

DESIGNATION	SOURCE	DURATION	ID
161:17 - 161:20	**Pedro, Justin 2022-07-07**	00:00:15	Pedro_J.45

	161:17	Is it fair to say that in the example
	161:18	we've been looking at, the Google Home app caused a
	161:19	JoinGroupMessage to be sent to each player for the
	161:20	group?

DESIGNATION	SOURCE	DURATION	ID
161:24 - 162:04	**Pedro, Justin 2022-07-07**	00:00:16	Pedro_J.46

	161:24	THE DEPONENT: Then, yes, I would say,
	161:25	yes.

DESIGNATION	SOURCE	DURATION	ID
	162:01 Q. (By Mr. Shea) And then is it fair to say		
	162:02 that the JoinGroupMessage that was sent to each		
	162:03 player in the group included an identifier of the		
	162:04 group?		
162:08 - 162:08	**Pedro, Justin 2022-07-07**	00:00:01	Pedro_J.47
	162:08 THE DEPONENT: Yes.		
165:15 - 165:20	**Pedro, Justin 2022-07-07**	00:00:26	Pedro_J.48
	165:15 Q. (By Mr. Shea) Okay. We've been focusing		
	165:16 on -- on the process for creating one speaker group		
	165:17 within a system.		
	165:18 Is it possible to use the Google Home app		
	165:19 to create multiple different speaker groups that		
	165:20 have overlapping players?		
165:24 - 166:08	**Pedro, Justin 2022-07-07**	00:00:30	Pedro_J.49
	165:24 THE DEPONENT: Yes.		
	165:25 Q. (By Mr. Shea) And when creating -- so		
	166:01 we've talked through an example in Exhibit 42 for		
	166:02 creating what I'm going to call a first speaker		
	166:03 group.		
	166:04 If we were to then create a second		
	166:05 speaker group with at least one overlapping player,		
	166:06 would there be any difference in how the process		
	166:07 for creating that second speaker group was carried		
	166:08 out?		
166:12 - 166:15	**Pedro, Justin 2022-07-07**	00:00:09	Pedro_J.50
	166:12 THE DEPONENT: From a code point of view,		
	166:13 no.		
	166:14 Q. (By Mr. Shea) And then how about from a		
	166:15 user per- -- user interface point of view?		
166:17 - 166:17	**Pedro, Justin 2022-07-07**	00:00:01	Pedro_J.51
	166:17 THE DEPONENT: No.		
167:17 - 167:21	**Pedro, Justin 2022-07-07**	00:00:16	Pedro_J.52
	167:17 Are you aware -- aware of any changes in		
	167:18 the relevant functionality of the Google Home app,		
	167:19 as it relates to creating a speaker group, that		
	167:20 were released between October 2020 and the present		
	167:21 date?		
167:24 - 168:01	**Pedro, Justin 2022-07-07**	00:00:14	Pedro_J.53

DESIGNATION	SOURCE	DURATION	ID
	167:24 THE DEPONENT: I am not aware of any		Pedro_J.53
	167:25 release changes to the functionality of speaker		
	168:01 groups between October 2020 and now.		
168:16 - 168:22	**Pedro, Justin 2022-07-07**	00:00:26	Pedro_J.54
	168:16 I mean, what I'm asking is, with respect		
	168:17 to the functionality that you and I have talked		
	168:18 through in connection with Exhibit 42 for creating		
	168:19 a -- a speaker group, is there any differences you		
	168:20 can think of between how the Android version of the		
	168:21 Google Home app handles that functionality and how		
	168:22 the iOS version of it handles that functionality?		
169:01 - 169:03	**Pedro, Justin 2022-07-07**	00:00:06	Pedro_J.55
	169:01 THE DEPONENT: Yes.		
	169:02 Q. (By Mr. Shea) Okay. Can you tell me		
	169:03 what you have in your mind?		
169:05 - 169:17	**Pedro, Justin 2022-07-07**	00:01:05	Pedro_J.56
	169:05 THE DEPONENT: To my knowledge, the iOS		
	169:06 version of the -- of the speaker group		
	169:07 functionality does not -- only supports the HTTP		
	169:08 transport.		
	169:09 And the reliance on whether it		
	169:10 discover -- whether it discovers groups from direct		
	169:11 device information or Cast SDK messages is		
	169:12 slightly -- has slightly different priority.		
	169:13 Q. (By Mr. Shea) Other than those items,		
	169:14 anything else that you can think of that -- that		
	169:15 you would consider to be a functional difference		
	169:16 between iOS and Android versions, as it relates		
	169:17 to creating a group?		
169:20 - 169:20	**Pedro, Justin 2022-07-07**	00:00:02	Pedro_J.57
	169:20 THE DEPONENT: No.		
170:01 - 170:08	**Pedro, Justin 2022-07-07**	00:00:21	Pedro_J.58
	170:01 What I'd like to now ask is -- is how the		
	170:02 Google Home app can be used to play back audio on a		
	170:03 group that has already been created.		
	170:04 And in order to help us talk through		
	170:05 that, I've created a similar set of screenshots		
🔗 T81.1	170:06 in -- in an exhibit I'd like to introduce.		
	170:07 (Exhibit 81 was marked for identification		

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DESIGNATION	SOURCE	DURATION	ID
	170:08 by the court reporter and is attached hereto.)		
183:07 - 183:11	**Pedro, Justin 2022-07-07**	00:00:25	Pedro_J.59
	183:07 Q. (By Mr. Shea) If a user selects one of		
	183:08 the groups -- speaker groups shown on the media		
	183:09 screen here, in this scenario where, at the time,		
	183:10 no other player is playing back, what action does		
	183:11 the Google Home app then take?		
183:14 - 183:18	**Pedro, Justin 2022-07-07**	00:00:21	Pedro_J.60
	183:14 THE DEPONENT: The -- I -- I do not have		
	183:15 a complete answer. I just know that it would		
	183:16 initiate a session with the Chromecast --		
	183:17 Chromecast API -- or Cast SDK -- sorry -- the Cast		
	183:18 SDK API.		
187:21 - 187:24 🔗 T81.4	**Pedro, Justin 2022-07-07**	00:00:16	Pedro_J.61
	187:21 Q. (By Mr. Shea) So in this scenario		
	187:22 starting -- focusing first with the left-hand side		
	187:23 screenshot, does this show representations of		
	187:24 created speaker groups in the system?		
188:02 - 188:02	**Pedro, Justin 2022-07-07**	00:00:01	Pedro_J.62
	188:02 THE DEPONENT: Yes.		
193:14 - 193:16 ✗ Clear	**Pedro, Justin 2022-07-07**	00:00:09	Pedro_J.63
	193:14 So before we do that, I'm going to mark		
	193:15 it, at least for recordkeeping purposes, as		
	193:16 Exhibit 82.		
193:19 - 193:21	**Pedro, Justin 2022-07-07**	00:00:10	Pedro_J.64
	193:19 MR. SHEA: And this is going to be the		
	193:20 DynamicSessionClient.Java file with source code		
	193:21 numbers 1404 through 1405.		
194:20 - 195:06 🔗 T81.4	**Pedro, Justin 2022-07-07**	00:00:41	Pedro_J.65
	194:20 So looking back -- when we were looking		
	194:21 at Exhibit 81, the scenario, again, I'm asking		
	194:22 about is a scenario where the user is selecting		
	194:23 a -- a speaker group within the media tab that --		
	194:24 that was shown on page 4 of Exhibit 81.		
	194:25 And now we're talking here about the		
	195:01 AddDeviceFunction and the device ID that's passed		
	195:02 into that function.		
	195:03 And so my question is, is the device ID		

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DESIGNATION	SOURCE	DURATION	ID
	195:04 that gets passed in here going to be an ID for the		
	195:05 group that is selected or instead for some		
	195:06 individual device?		
195:10 - 195:12	**Pedro, Justin 2022-07-07**	00:00:09	Pedro_J.66
	195:10 THE DEPONENT: In the case where you		
	195:11 click on a group, the ID being passed in here would		
	195:12 be an identifier for the group.		
199:07 - 199:13	**Pedro, Justin 2022-07-07**	00:00:27	Pedro_J.67
	199:07 Q. (By Mr. Shea) In the scenario we were		
	199:08 talking about in the context of Exhibit 81, where		
	199:09 the -- the user has selected a speaker group to --		
	199:10 in the media screen, will the object that gets		
	199:11 passed in to the		
	199:12 SendSetPlaybackDevicesRequestMethod be an object		
	199:13 for that group?		
199:16 - 199:16	**Pedro, Justin 2022-07-07**	00:00:01	Pedro_J.68
	199:16 THE DEPONENT: Yes.		
207:24 - 208:01 ✗ Clear	**Pedro, Justin 2022-07-07**	00:00:15	Pedro_J.69
	207:24 Q. (By Mr. Shea) Okay. Do you -- have you		
	207:25 ever personally used a -- the Google Home app to		
	208:01 create speaker groups?		
208:04 - 208:04	**Pedro, Justin 2022-07-07**	00:00:02	Pedro_J.70
	208:04 THE DEPONENT: Yes.		
208:09 - 208:11	**Pedro, Justin 2022-07-07**	00:00:06	Pedro_J.71
	208:09 Can you tell me in what capacity you		
	208:10 would have used the Google Home app to create		
	208:11 speaker groups?		
208:14 - 208:16	**Pedro, Justin 2022-07-07**	00:00:20	Pedro_J.72
	208:14 THE DEPONENT: I would have created		
	208:15 speaker groups, A, to test issues as I needed to		
	208:16 triage them. And B, on -- as personal use.		
210:05 - 210:09	**Pedro, Justin 2022-07-07**	00:00:18	Pedro_J.73
	210:05 Q. (By Mr. Shea) And then with respect to		
	210:06 your personal use, I think you mentioned there		
	210:07 are -- have been times where you've used the		
	210:08 Google Home app to create a group?		
	210:09 A. Yes.		
210:19 - 210:21	**Pedro, Justin 2022-07-07**	00:00:11	Pedro_J.74

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DESIGNATION	SOURCE	DURATION	ID
	210:19 Q. (By Mr. Shea) Okay. And -- and once you		Pedro_J.74
	210:20 created that all speakers group, did you then play		
	210:21 music on that all speakers group, Mr. Pedro?		
210:24 - 210:25	**Pedro, Justin 2022-07-07**	00:00:05	Pedro_J.75
	210:24 THE DEPONENT: I may have to test it out,		
	210:25 to see if it worked.		
212:07 - 212:10	**Pedro, Justin 2022-07-07**	00:00:15	Pedro_J.76
	212:07 Q. (By Mr. Shea) Is -- is it the case		
	212:08 that -- that Google's -- the Google Home app allows		
	212:09 a user to name a speaker group according to		
	212:10 whatever they would want to name it?		
212:17 - 212:24	**Pedro, Justin 2022-07-07**	00:00:27	Pedro_J.77
	212:17 THE DEPONENT: Short of special		
	212:18 characters and care and name length, I don't		
	212:19 believe there are any other restrictions on the		
	212:20 naming.		
	212:21 Q. (By Mr. Shea) So then is it the case		
	212:22 that -- that Google, one of the options that they		
	212:23 allow a user to do is to create a group that is		
	212:24 named according to some theme for that group?		
213:03 - 213:04	**Pedro, Justin 2022-07-07**	00:00:06	Pedro_J.78
	213:03 THE DEPONENT: I'm not -- of any -- aware		
	213:04 of any restriction that would prevent that.		
215:12 - 215:16	**Pedro, Justin 2022-07-07**	00:00:19	Pedro_J.79
	215:12 Q. (By Mr. Shea) Okay. So when you look at		
	215:13 a comparison between speaker groups and dynamic		
	215:14 groups, in your view, are there any advantages to		
	215:15 having a speaker group as opposed to a dynamic		
	215:16 group?		
215:19 - 215:21	**Pedro, Justin 2022-07-07**	00:00:10	Pedro_J.80
	215:19 THE DEPONENT: The only key difference		
	215:20 is -- well, the key differences I'm aware of are		
	215:21 longevity and naming.		
215:24 - 215:25	**Pedro, Justin 2022-07-07**	00:00:04	Pedro_J.81
	215:24 When you said "longevity," what do you		
	215:25 mean by that?		
216:03 - 216:10	**Pedro, Justin 2022-07-07**	00:00:32	Pedro_J.82
	216:03 THE DEPONENT: A static group would exist		

DESIGNATION	SOURCE	DURATION	ID
	216:04 until -- normally until users took an action to		
	216:05 specifically disband the group, as opposed to		
	216:06 dynamic groups need to be re-created on a		
	216:07 per-session basis.		
	216:08 Q. (By Mr. Shea) And why would you consider		
	216:09 longevity to be an advantage then of a -- of a		
	216:10 speaker group?		
216:14 - 216:21	**Pedro, Justin 2022-07-07**	00:00:34	Pedro_J.83
	216:14 THE DEPONENT: Advantage is a bit of a		
	216:15 loaded term. The -- it's a difference that is		
	216:16 suitable for cases where you want to refer to the		
	216:17 same group over long periods of time.		
	216:18 Q. (By Mr. Shea) And then another		
	216:19 difference that you mentioned was I think what you		
	216:20 just referred to as naming.		
	216:21 Can you tell me what you meant by that?		
216:23 - 217:02	**Pedro, Justin 2022-07-07**	00:00:30	Pedro_J.84
	216:23 THE DEPONENT: The -- the ability to		
	216:24 differentiate between two different groups based on		
	216:25 a visually represented name is something that would		
	217:01 help with the differentiation between the two,		
	217:02 between multiple groups.		

Sonos Affirmatives	00:22:40	
TOTAL RUN TIME	**00:22:40**	

📄 Documents linked to video:

T42

T81

T84

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Designation List Report

MacKay, Kenneth   **2022-05-10**

Sonos Affirmatives	00:32:12
Google Counters	00:06:16
TOTAL RUN TIME	**00:38:28**

Documents linked to video:

T36

T38

T41

T48

T84

MacKay_K_vol1 - As Played in Court 05/10/23

DESIGNATION	SOURCE	DURATION	ID
11:08 - 11:12	**MacKay, Kenneth 2022-05-10**	00:00:19	MacKay_K_vol1.1
	11:08 Q. Mr. MacKay, good to see you again.		
	11:09 For the record, could you just state your		
	11:10 full name and spell it for us.		
	11:11 A. My full name is Kenneth John MacKay.		
	11:12 K-E-N-N-E-T-H, J-O-H-N, M-A-C capital K-A-Y.		
15:07 - 15:10	**MacKay, Kenneth 2022-05-10**	00:00:11	MacKay_K_vol1.2
	15:07 Q. (By Mr. Shea) Now, this lists your		
	15:08 current title, I believe, at Google, as senior		
	15:09 staff software engineer; is that correct?		
	15:10 A. It does.		
24:17 - 24:19	**MacKay, Kenneth 2022-05-10**	00:00:07	MacKay_K_vol1.3
🔗 T84.1	24:17 What I'd like to do now is introduce the		
	24:18 30(b)(6) notice and -- and start to ask you some		
	24:19 things about that.		
25:06 - 25:08	**MacKay, Kenneth 2022-05-10**	00:00:12	MacKay_K_vol1.10 4
	25:06 Have you seen this document before,		
	25:07 Mr. MacKay?		
	25:08 A. I don't think so.		
25:22 - 26:01	**MacKay, Kenneth 2022-05-10**	00:00:14	MacKay_K_vol1.4
🔗 T84.11.1	25:22 Q. My understanding is Google has designated		
	25:23 you as their representative with respect to		
	25:24 subpart (i) of this topic No. 1. Is that		
	25:25 consistent with your understanding as well?		
	26:01 A. Yes.		
29:01 - 29:06	**MacKay, Kenneth 2022-05-10**	00:00:14	MacKay_K_vol1.5
	29:01 Q. Can you think of anyone currently		
	29:02 employed at Google that you would consider to be		
	29:03 more knowledgeable about the subject matter of --		
	29:04 of this topic of our deposition notice, other than		
	29:05 yourself?		
	29:06 A. No.		
29:14 - 29:17	**MacKay, Kenneth 2022-05-10**	00:00:11	MacKay_K_vol1.6
✗ Clear	29:14 Do you understand that -- that by		
	29:15 providing testimony in a 30(b)(6) capacity, that		
	29:16 you are testifying on behalf of -- of Google?		
	29:17 A. Yes.		
50:05 - 50:06	**MacKay, Kenneth 2022-05-10**	00:00:06	MacKay_K_vol1.7

MacKay_K_vol1 - As Played in Court 05/10/23

DESIGNATION	SOURCE		DURATION	ID
	50:05	Do you have your own Google players that		MacKay_K_vol1.7
	50:06	you use?		
50:08 - 50:08	**MacKay, Kenneth 2022-05-10**		00:00:01	MacKay_K_vol1.8
	50:08	THE DEPONENT: Yes.		
50:09 - 50:11	**MacKay, Kenneth 2022-05-10**		00:00:10	MacKay_K_vol1.10 5
	50:09 Q.	(By Mr. Shea) And when you are playing		
	50:10	music on your own Google players, what app or apps		
	50:11	do you use to play music on those players?		
50:13 - 50:18	**MacKay, Kenneth 2022-05-10**		00:00:18	MacKay_K_vol1.10 6
	50:13	THE DEPONENT: We use voice commands,		
	50:14	typically.		
	50:15 Q.	(By Mr. Shea) Are -- are there -- was		
	50:16	there ever a time or -- or is there a time now		
	50:17	where you use any mobile app to play music to your		
	50:18	Google players?		
50:20 - 50:20	**MacKay, Kenneth 2022-05-10**		00:00:02	MacKay_K_vol1.10 7
	50:20	THE DEPONENT: Not me specifically.		
50:21 - 50:23	**MacKay, Kenneth 2022-05-10**		00:00:06	MacKay_K_vol1.9
	50:21 Q.	(By Mr. Shea) Have you ever in the past		
	50:22	used any mobile app to play music on -- on a		
	50:23	Google player?		
50:25 - 50:25	**MacKay, Kenneth 2022-05-10**		00:00:01	MacKay_K_vol1.10
	50:25	THE DEPONENT: Yes.		
55:15 - 55:17	**MacKay, Kenneth 2022-05-10**		00:00:05	MacKay_K_vol1.11
	55:15 Q.	Okay. So a Wi-Fi network would be one		
	55:16	example of a data network?		
	55:17 A.	Yes.		
55:21 - 55:24	**MacKay, Kenneth 2022-05-10**		00:00:14	MacKay_K_vol1.12
🔗 T84.3.1	55:21 Q.	(By Mr. Shea) -- each of the players		
	55:22	listed in paragraph 3 of Exhibit 2, is it true that		
	55:23	those -- those players are capable of connecting to		
	55:24	and communicating over a Wi-Fi network?		
56:01 - 56:01	**MacKay, Kenneth 2022-05-10**		00:00:02	MacKay_K_vol1.13
	56:01	THE DEPONENT: Yes.		
57:04 - 57:08	**MacKay, Kenneth 2022-05-10**		00:00:30	MacKay_K_vol1.14
⌧ Clear	57:04 Q.	What is a "speaker group" as Google uses		
	57:05	that term?		

MacKay_K_vol1 - As Played in Court 05/10/23

DESIGNATION	SOURCE	DURATION	ID
	57:06 A. I would describe it as a set of devices		
	57:07 that appears as a castable -- as a Cast target.		
	57:08 And when casted to, they all play together --		
57:10 - 57:10	**MacKay, Kenneth 2022-05-10**	00:00:02	MacKay_K_vol1.15
	57:10 A. -- specifically -- specifically audio.		
57:16 - 57:22	**MacKay, Kenneth 2022-05-10**	00:00:28	MacKay_K_vol1.16
	57:16 What do you mean by "appears as a Cast		
	57:17 target"?		
	57:18 A. So what I mean is that you can cast to		
	57:19 the group. So in -- if you're in a sender app, for		
	57:20 example, and you hit the Cast button, then the		
	57:21 group would show up as -- as a potential Cast		
	57:22 option.		
60:17 - 60:17	**MacKay, Kenneth 2022-05-10**	00:00:02	MacKay_K_vol1.17
🔗 T36.1	60:17 I'm going to mark that as Exhibit 36.		
61:07 - 61:13	**MacKay, Kenneth 2022-05-10**	00:00:20	MacKay_K_vol1.18
	61:07 So if you see in the first statement		
🔗 T36.1.1	61:08 there it says "Group any combination of Google Nest		
	61:09 or Google Home speakers and displays and Chromecast		
	61:10 devices together for synchronous music throughout		
	61:11 the home."		
	61:12 Do you see that?		
	61:13 A. Yes.		
63:01 - 63:11	**MacKay, Kenneth 2022-05-10**	00:00:46	MacKay_K_vol1.19
✗ Clear	63:01 Q. Now, are you familiar with a term,		
	63:02 "static group"?		
	63:03 A. Yes.		
	63:04 Q. What is a "static group"?		
	63:05 A. So that is a group that the user defines		
	63:06 using the Google Home app, I think, is the only		
	63:07 way. So they define a group, and then that group		
	63:08 becomes a castable target.		
	63:09 Q. And how does a "static group" compare to		
	63:10 what is referred to as a "speaker group" in		
	63:11 Exhibit 36?		
63:13 - 63:16	**MacKay, Kenneth 2022-05-10**	00:00:17	MacKay_K_vol1.20
	63:13 THE DEPONENT: Let me go back.		
	63:14 So a "static group" is what is being		
	63:15 referred to in -- in this document, "Create and		

MacKay_K_vol1 - As Played in Court 05/10/23

DESIGNATION	SOURCE		DURATION	ID
	63:16 manage speaker groups," I think.			
63:19 - 63:19	**MacKay, Kenneth 2022-05-10**		00:00:03	MacKay_K_vol1.21
	63:19 THE DEPONENT: Yeah, that's accurate.			
64:11 - 65:02	**MacKay, Kenneth 2022-05-10**		00:01:17	MacKay_K_vol1.22
	64:11 Q. So then can you tell me what a static --			
	64:12 excuse me -- what a "dynamic group" is?			
	64:13 A. So a "dynamic group" refers to the			
	64:14 ability to add or remove devices from an ongoing			
	64:15 playback. So -- and it's a temporary association,			
	64:16 I guess you would say, of the devices that only			
	64:17 exist as long as -- as long as that Cast session is			
	64:18 ongoing.			
	64:19 Q. So are you able to articulate for me			
	64:20 the -- the distinction between what you call a			
	64:21 "dynamic group" and what you call a "static group"?			
	64:22 A. I guess the main distinction would be how			
	64:23 it's set up. So the static group is set up through			
	64:24 the Google Home app explicitly by the user and			
	64:25 named. Whereas, a dynamic group is sort of set up,			
	65:01 I would say, behind the scenes in response to a			
	65:02 user adding or removing devices.			
65:09 - 65:11	**MacKay, Kenneth 2022-05-10**		00:00:05	MacKay_K_vol1.23
	65:09 does "static" have any meaning			
	65:10 in terms of characterizing what kind of group it			
	65:11 is?			
65:14 - 65:20	**MacKay, Kenneth 2022-05-10**		00:00:26	MacKay_K_vol1.24
	65:14 THE DEPONENT: So I guess maybe what			
	65:15 you're getting at is that the static group is			
	65:16 persistent, like it doesn't -- it doesn't go away			
	65:17 once playback is completed.			
	65:18 Q. (By Mr. Shea) Is that generally why			
	65:19 Google uses the phrase "static" to refer to those			
	65:20 kinds of groups?			
65:22 - 65:25	**MacKay, Kenneth 2022-05-10**		00:00:09	MacKay_K_vol1.25
	65:22 THE DEPONENT: I think we just chose			
	65:23 static as sort of the opposite of -- of dynamic, or			
	65:24 like as an alternative to dynamic to differentiate			
	65:25 the two kinds of groups.			
70:15 - 70:19	**MacKay, Kenneth 2022-05-10**		00:00:19	MacKay_K_vol1.26

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DESIGNATION	SOURCE		DURATION	ID
	70:15	as a result		MacKay_K_vol1.26
	70:16	of a user selecting a particular speaker group for		
	70:17	launch on a controller device, will that then		
	70:18	trigger the controller device to send a launch		
	70:19	message for that selected speaker group?		
70:21 - 70:25	**MacKay, Kenneth 2022-05-10**		00:00:20	MacKay_K_vol1.27
	70:21	THE DEPONENT: So when the user selects a		
	70:22	speaker group to cast to, I believe that would		
	70:23	typically cause a launch message to be sent from		
	70:24	the controller device to a member of the speaker		
	70:25	group.		
72:11 - 73:06	**MacKay, Kenneth 2022-05-10**		00:01:25	MacKay_K_vol1.28
	72:11	Q. And at a high level, can you -- can you		
	72:12	describe for me what the leader-specific		
	72:13	functionality is that's carried out by a leader		
	72:14	once a group is launched?		
	72:15	A. So the sender has set up a connection to		
	72:16	the -- the leader's endpoint representing the		
	72:17	group. And that device is -- received a launch		
	72:18	message, and so that device would launch the		
	72:19	appropriate receiver app, which could be either a		
	72:20	JavaScript app or C++ code.		
	72:21	And then if that app plays audio, the		
	72:22	leader would distribute that audio to any connected		
	72:23	followers.		
	72:24	Q. In addition to distributing that audio to		
	72:25	connected followers, does a leader also distribute		
	73:01	time stamps associated with that audio?		
	73:02	A. Yes.		
	73:03	Q. And does the leader also play a		
	73:04	particular role in a time synchronization process		
	73:05	with the followers?		
	73:06	A. Yes.		
86:03 - 86:04	**MacKay, Kenneth 2022-05-10**		00:00:05	MacKay_K_vol1.29
	86:03	I'm going to introduce another document		
🔗 T38.1	86:04	here. This is going to be Exhibit 38.		
86:13 - 86:15	**MacKay, Kenneth 2022-05-10**		00:00:06	MacKay_K_vol1.30
	86:13	Q. (By Mr. Shea) Does this document		
	86:14	look familiar to you?		

DESIGNATION	SOURCE	DURATION	ID
	86:15 A. Yes.		
87:06 - 87:08	**MacKay, Kenneth 2022-05-10**	00:00:05	MacKay_K_vol1.31
	87:06 Who -- who was the original author of --		
	87:07 of the document you see here?		
	87:08 A. I was.		
87:14 - 87:15	**MacKay, Kenneth 2022-05-10**	00:00:09	MacKay_K_vol1.108
	87:14 Q. (By Mr. Shea) And the -- do you recall		
	87:15 when you would have prepared this document?		
87:17 - 87:19	**MacKay, Kenneth 2022-05-10**	00:00:07	MacKay_K_vol1.109
	87:17 THE DEPONENT: I'm not sure of the exact		
	87:18 date. I think I probably started writing it in		
	87:19 2015 sometime.		
88:07 - 88:14 ⌁ T38.2.1	**MacKay, Kenneth 2022-05-10**	00:00:22	MacKay_K_vol1.32
	88:07 Q. Okay. In the "Overview" section, there's		
	88:08 a statement says -- that says "The primary goal of		
	88:09 multiroom audio is to play out the audio in sync		
	88:10 across all the devices in a group."		
	88:11 Do you see that?		
	88:12 A. Yes.		
	88:13 Q. Is that an accurate characterization of		
	88:14 what the primary goal of multiroom audio is?		
88:16 - 88:19	**MacKay, Kenneth 2022-05-10**	00:00:12	MacKay_K_vol1.33
	88:16 THE DEPONENT: Yeah. So this is the same		
	88:17 thing that we were discussing earlier where the		
	88:18 goal is to play the audio out of the speakers of		
	88:19 the devices, the physical speaker at the same time.		
94:01 - 94:04 ✗ Clear	**MacKay, Kenneth 2022-05-10**	00:00:12	MacKay_K_vol1.34
	94:01 When a Google player is included as part		
	94:02 of a previously created group, does it store a		
	94:03 group name and a UUID for that group?		
	94:04 A. Yes.		
94:05 - 94:25	**MacKay, Kenneth 2022-05-10**	00:01:19	MacKay_K_vol1.110
	94:05 Q. When a Google player is included in a		
	94:06 previously created group, does it store an		
	94:07 indication of whether it is currently the leader?		
	94:08 A. Not persistently.		
	94:09 Q. When you say "not persistently," can you		
	94:10 tell me what you mean.		

DESIGNATION	SOURCE	DURATION	ID

94:11　A.　So when a device is elected as a leader

94:12　　　or considers itself to be the leader, there is

94:13　　　information stored in RAM on the device, which I

94:14　　　guess you'd call "volatile memory." So if the

94:15　　　device is turned off, then that information would

94:16　　　be lost. But it's not stored persistently on disk,

94:17　　　so it doesn't persist across reboot.

94:18　Q.　Okay. So does that then mean that when a

94:19　　　device is rebooted, it then reruns an election

94:20　　　process for the leader?

94:21　A.　The election process runs continually

94:22　　　amongst all the devices that are online.

94:23　Q.　Okay. And so when a -- when a device

94:24　　　is -- is rebooted, it -- it -- it then -- it joins

94:25　　　that process not really having any knowledge of --

95:14 - 95:20　　**MacKay, Kenneth 2022-05-10**　　00:00:23　MacKay_K_vol1.35

95:14　　　focusing

95:15　　　specifically on -- on whichever player is currently

95:16　　　elected as the leader of a particular group, will

95:17　　　that player store in memory identifiers of each

95:18　　　device that is currently a follower of that group?

95:19　A.　It stores information about the followers

95:20　　　that are currently connected to it.

97:21 - 98:03　　**MacKay, Kenneth 2022-05-10**　　00:00:25　MacKay_K_vol1.36

97:21　Q.　-- does the

97:22　　　follower store, for instance, an IP address of the

97:23　　　leader?

97:24　A.　Yes. Well, in -- in general, it -- it

97:25　　　stores -- yeah, it stores the IP address of the

98:01　　　leader. And then if the leader changes, then it

98:02　　　would -- it would change -- it would reconnect to

98:03　　　the different leader and store that IP address.

98:04 - 98:13　　**MacKay, Kenneth 2022-05-10**　　00:00:39　MacKay_K_vol1.11
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　1

98:04　Q.　Does the follower store any identifying

98:05　　　information for other followers that are in that

98:06　　　group?

98:07　A.　So when the device is on -- online, all

98:08　　　of the devices that think that they're members of

98:09　　　the group advertise their information over mDNS,

98:10　　　and then each device stores in volatile memory.

DESIGNATION	SOURCE	DURATION	ID
	98:11 Essentially the -- the information that's contained		
	98:12 in that mDNS record which -- and including the IP		
	98:13 address.		
98:14 - 98:18	**MacKay, Kenneth 2022-05-10**	00:00:17	MacKay_K_vol1.37
	98:14 Q. -- so in that case, each		
	98:15 follower would -- would store the IP address for		
	98:16 another follower and -- and it would also have the		
	98:17 UUID of the group, such that it would know that the		
	98:18 follower was a member of that particular group?		
98:20 - 98:24	**MacKay, Kenneth 2022-05-10**	00:00:14	MacKay_K_vol1.38
	98:20 THE DEPONENT: So it -- it knows -- it		
	98:21 stores the information that each device has		
	98:22 announced over mDNS. So it -- it knows that the		
	98:23 other device considers itself to be part of the		
	98:24 group, I would say.		
110:24 - 111:09	**MacKay, Kenneth 2022-05-10**	00:00:35	MacKay_K_vol1.39
	110:24 Limiting the question to Google's own		
	110:25 player -- Cast-enabled players that we've been		
	111:01 talking about today, is it true that each of those		
	111:02 players can be a member of several static groups?		
	111:03 A. If the device supports groups at all		
	111:04 then, yes, it can be a member of multiple static		
	111:05 groups.		
	111:06 Q. Is there any maximum limit on how many		
	111:07 static groups a given Google player can be a part		
	111:08 of?		
	111:09 A. We don't have an explicit limit.		
111:25 - 112:01	**MacKay, Kenneth 2022-05-10**	00:00:12	MacKay_K_vol1.40
	111:25 MR. SHEA: So maybe -- I'm going to ask		
	112:01 you about one more document, for the time being,		
112:07 - 112:09 🔗 T41.1	**MacKay, Kenneth 2022-05-10**	00:00:17	MacKay_K_vol1.41
	112:07 loaded up, it's going to be Exhibit 41. The full		
	112:08 Bates number is GOOG-SONOSWT- -- WTDX-48792 through		
	112:09 -838.		
112:13 - 112:17 🔗 T41.1.1	**MacKay, Kenneth 2022-05-10**	00:00:10	MacKay_K_vol1.42
	112:13 Q. (By Mr. Shea) Okay. And so the -- the		
	112:14 title of this document is "GC4A Technical		
	112:15 Specification."		
	112:16 Do you see that?		

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	112:17 A. Yes.		
113:04 - 113:07	**MacKay, Kenneth 2022-05-10**	00:00:16	MacKay_K_vol1.43
🔗 T41.11	113:04 Q. Okay. So I just have one specific 113:05 question on this document, which is going to be PDF 113:06 page 11. Bates number page ends -802. 113:07 A. Okay.		
113:22 - 114:05	**MacKay, Kenneth 2022-05-10**	00:00:29	MacKay_K_vol1.44
🔗 T41.11.2	113:22 Q. And then the second bullet there says 113:23 "Even if a device is part of a" group -- or 113:24 "groups," plural, "it will still be available for 113:25 casting as a standalone device." 114:01 Do you see that? 114:02 A. Yes. 114:03 Q. Is that an accurate description of how 114:04 Google's players that exist today operate in a 114:05 scenario where they are part of one or more groups?		
114:07 - 114:09	**MacKay, Kenneth 2022-05-10**	00:00:08	MacKay_K_vol1.45
	114:07 THE DEPONENT: So if -- whether or not a 114:08 device is a member of a group or multiple groups, 114:09 you can still cast to it as a single device.		
116:04 - 116:09	**MacKay, Kenneth 2022-05-10**	00:00:18	MacKay_K_vol1.11 2
	116:04 So my questions right now are meant to be 116:05 limited to a -- a newly created speaker group, as 116:06 opposed to a speaker group that's being edited or 116:07 modified after being initially created, if that 116:08 helps clarify. 116:09 A. Okay.		
116:10 - 116:13	**MacKay, Kenneth 2022-05-10**	00:00:12	MacKay_K_vol1.46
	116:10 Q. is it true that a 116:11 newly created speaker group is not automatically 116:12 launched at the time that it is created? 116:13 A. If it's a static group, yes.		
116:14 - 116:18	**MacKay, Kenneth 2022-05-10**	00:00:19	MacKay_K_vol1.11 3
	116:14 Q. Do you know -- why is it that the -- that 116:15 functionality exists, where you allow a user to 116:16 create a static group but then don't automatically 116:17 launch it? 116:18 A. Well, we don't --		

DESIGNATION	SOURCE	DURATION	ID
116:20 - 117:03	**MacKay, Kenneth 2022-05-10**	00:00:45	MacKay_K_vol1.114
	116:20 THE DEPONENT: We wouldn't know what to		
	116:21 automatically launch. It's up to the user.		
	116:22 Q. (By Mr. Shea) Is -- so between the time		
	116:23 that the group is first created and the time when		
	116:24 it's launched, in that in between time, is there a		
	116:25 phrase that you use to describe what the state of		
	117:01 that group is in?		
	117:02 A. I don't think so. Not that I can think		
	117:03 of.		
117:04 - 117:08 Clear	**MacKay, Kenneth 2022-05-10**	00:00:15	MacKay_K_vol1.47
	117:04 Q. Would it be fair to say that at that time		
	117:05 where a group has been created but not yet		
	117:06 launched, that the group exists in an unlaunched		
	117:07 state?		
	117:08 A. Yes.		
117:10 - 117:13	**MacKay, Kenneth 2022-05-10**	00:00:11	MacKay_K_vol1.115
	117:10 Q. (By Mr. Shea) And -- and is another way		
	117:11 to think about that, that at the -- in the time		
	117:12 between when the group is created and when it is		
	117:13 launched, that the speaker group would be inactive?		
117:15 - 117:15	**MacKay, Kenneth 2022-05-10**	00:00:01	MacKay_K_vol1.116
	117:15 THE DEPONENT: Yes, I think so.		
117:17 - 117:24	**MacKay, Kenneth 2022-05-10**	00:00:30	MacKay_K_vol1.48
	117:17 but just to clarify, you		
	117:18 agree that a speaker group is something that is		
	117:19 saved by a user in advance of being launched?		
	117:20 A. Well, again, the -- the group might never		
	117:21 be launched. Like you might never cast to the		
	117:22 group. So it's -- I would characterize it as -- a		
	117:23 static group is something that the user configures		
	117:24 and it's saved persistently.		
117:25 - 118:02	**MacKay, Kenneth 2022-05-10**	00:00:09	MacKay_K_vol1.49
	117:25 Q. -- and saved prior to any		
	118:01 possible time of launch, if any; is that right?		
	118:02 A. Yes.		
120:20 - 120:22	**MacKay, Kenneth 2022-05-10**	00:00:07	MacKay_K_vol1.50
	120:20 How would you characterize what the UUID		

DESIGNATION	SOURCE	DURATION	ID
	120:21 of the group is?		
	120:22 A. It's the identifier for the group.		
120:23 - 121:01	**MacKay, Kenneth 2022-05-10**	00:00:11	MacKay_K_vol1.51
	120:23 Q. -- which device generates		
	120:24 the UUID for the group?		
	120:25 A. The device that's running the Google Home		
	121:01 app.		
122:15 - 122:22	**MacKay, Kenneth 2022-05-10**	00:00:38	MacKay_K_vol1.52
	122:15 is it also the case that the		
	122:16 Google Home app would store, at least temporarily,		
	122:17 the -- some sort of identifiers for the particular		
	122:18 Google players that have been added to the group?		
	122:19 A. Well, it must store at least the -- its		
	122:20 local connection to those devices. And the names		
	122:21 are displayed to the users, so those must also be		
	122:22 stored -- sorry -- the names of the --		
122:24 - 122:24	**MacKay, Kenneth 2022-05-10**	00:00:02	MacKay_K_vol1.53
	122:24 A. -- the names of the individual devices.		
127:14 - 127:19	**MacKay, Kenneth 2022-05-10**	00:00:24	MacKay_K_vol1.54
	127:14 Q. If a user wants the ability to listen to		
	127:15 music on two particular Google players at a		
	127:16 specific time of day, such as the morning, does the		
	127:17 Google software allow the user to create a speaker		
	127:18 group, including those two speakers, and name it		
	127:19 Morning?		
127:21 - 127:22	**MacKay, Kenneth 2022-05-10**	00:00:03	MacKay_K_vol1.55
	127:21 THE DEPONENT: So the user can name the		
	127:22 group whatever they like.		
166:06 - 166:09	**MacKay, Kenneth 2022-05-10**	00:00:17	MacKay_K_vol1.56
	166:06 Q. (By Mr. Shea) once a		
	166:07 user has input a name into this field and hit save,		
	166:08 do you have an understanding of what happens next		
	166:09 on the device running the Google Home app?		
166:11 - 167:02	**MacKay, Kenneth 2022-05-10**	00:01:10	MacKay_K_vol1.57
	166:11 THE DEPONENT: So I don't know all of the		
	166:12 actions that the Google Home app takes. But I can		
	166:13 tell you specifically what actions it would take in		
	166:14 regards to the devices that the user selected.		

DESIGNATION	SOURCE	DURATION	ID
	166:15 Q. (By Mr. Shea) Okay.		
	166:16 A. So the -- the -- the Google Home app		
	166:17 would form connections to the devices that the user		
	166:18 selected, assuming that they're, I guess, online		
	166:19 and connectable. And then it would send a group --		
	166:20 a join group message to each of those devices		
	166:21 instructing them to add themselves to the group.		
	166:22 And the devices would handle that, as we		
	166:23 discussed before, I guess, in terms of storing		
	166:24 the group information locally and beginning the		
	166:25 leader election process. Once the -- once the		
	167:01 message is handled by a given device, then the		
	167:02 response is sent back to the Google Home app.		
171:08 - 171:10	**MacKay, Kenneth 2022-05-10**	00:00:06	MacKay_K_vol1.58
	171:08 I'm going to call		
	171:09 this Exhibit 43 just so we have a placeholder for		
	171:10 it on the record.		
171:15 - 171:21	**MacKay, Kenneth 2022-05-10**	00:00:21	MacKay_K_vol1.59
	171:15 Q. (By Mr. Shea) Mr. MacKay, are you		
	171:16 familiar with this source code module?		
	171:17 A. Yes.		
	171:18 Q. And can you -- is -- is this source code		
	171:19 module related to the process on the player side		
	171:20 for receiving a join group message?		
	171:21 A. Yes.		
178:03 - 178:14	**MacKay, Kenneth 2022-05-10**	00:00:30	MacKay_K_vol1.60
	178:03 said on -- at line 448 that that was a place where		
	178:04 the -- the group configuration would be stored.		
	178:05 Do I have that right?		
	178:06 A. So there's -- there's the storage locally		
	178:07 in RAM, like in volatile memory, on line 448,		
	178:08 which --		
	178:09 Q. Okay.		
	178:10 A. -- so that -- that adds it locally in --		
	178:11 in RAM. And then on line 506 is where we store the		
	178:12 configuration -- or it's not actual storage.		
	178:13 That's the -- where we make the call to store the		
	178:14 group configuration persistently.		
181:05 - 181:10	**MacKay, Kenneth 2022-05-10**	00:00:18	MacKay_K_vol1.61

DESIGNATION	SOURCE	DURATION	ID
	181:05 For recordkeeping purposes, I'm going to		MacKay_K_vol1.61
	181:06 call the multizone setup.cc file that we talked		
	181:07 about, which is 27 through 31, I'm going to refer		
	181:08 to that as Exhibit 44.		
	181:09 (Exhibit 44 was marked for identification		
	181:10 by the court reporter and is attached hereto.)		
194:25 - 195:06	**MacKay, Kenneth 2022-05-10**	00:00:25	MacKay_K_vol1.62
	194:25 And, again, in a scenario where you're		
	195:01 not adding a device to -- to an existing group that		
	195:02 has a Cast session, but, again, are creating a new		
	195:03 group, then the -- the -- the Cast state of that		
	195:04 player being included in the new group will not		
	195:05 change.		
	195:06 A. If the new group is a static group, yes.		
195:10 - 195:15	**MacKay, Kenneth 2022-05-10**	00:00:28	MacKay_K_vol1.63
	195:10 And so what I'd like to ask now is, after		
	195:11 a first group is created that includes a particular		
	195:12 Google player, for instance, the kitchen player in		
	195:13 our example here, can a user then create a second		
	195:14 speaker group that also includes that same player?		
	195:15 A. Yes.		
199:15 - 199:19	**MacKay, Kenneth 2022-05-10**	00:00:26	MacKay_K_vol1.64
	199:15 Q. Okay. So just to close out on the --		
	199:16 the -- the process for creating a speaker group, as		
	199:17 far as you're aware, have there been any changes to		
	199:18 the player side functionality for joining a speaker		
	199:19 group between November 2019 and the present date?		
199:20 - 199:24	**MacKay, Kenneth 2022-05-10**	00:00:12	MacKay_K_vol1.65
	199:20 A. I don't think so. Not any substantial		
	199:21 changes.		
	199:22 Q. At least no changes that would be		
	199:23 relevant to the functionality we've been discussing		
	199:24 so far today?		
200:01 - 200:04	**MacKay, Kenneth 2022-05-10**	00:00:09	MacKay_K_vol1.66
	200:01 THE DEPONENT: I don't think so. I think		
	200:02 we might have added a field to the join group		
	200:03 message. But I don't think that would affect what		
	200:04 we've been discussing.		
219:17 - 219:18	**MacKay, Kenneth 2022-05-10**	00:00:14	MacKay_K_vol1.72

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DESIGNATION	SOURCE	DURATION	ID
	219:17 As far as you know, does -- is the same		MacKay_K_vol1.72
	219:18 Cast protocol used by iOS apps and Android apps?		
219:20 - 220:02	**MacKay, Kenneth 2022-05-10**	00:00:22	MacKay_K_vol1.73
	219:20 THE DEPONENT: Well, the app-specific		
	219:21 parameters may differ between the different app		
	219:22 versions. But as far as I know, the use of the		
	219:23 other fields is not different.		
	219:24 Q. (By Mr. Shea) Okay. And the overall		
	219:25 structure of the message itself would be the same		
	220:01 for both platforms?		
	220:02 A. Yes.		
237:17 - 237:20	**MacKay, Kenneth 2022-05-10**	00:00:15	MacKay_K_vol1.74
	237:17 have there been any changes from November 2019 to		
	237:18 the present day to the player side functionality		
	237:19 for receiving and handling a launch message for a		
	237:20 speaker group?		
237:22 - 237:24	**MacKay, Kenneth 2022-05-10**	00:00:06	MacKay_K_vol1.75
	237:22 THE DEPONENT: Specifically for a speaker		
	237:23 group or just in general handling a launch message		
	237:24 that may or may not be to a speaker group?		
238:09 - 238:12	**MacKay, Kenneth 2022-05-10**	00:00:14	MacKay_K_vol1.76
	238:09 Q. (By Mr. Shea) Can you -- are you able to		
	238:10 think of any specific changes that would be		
	238:11 relevant to the function that we've been discussing		
	238:12 with respect to launching speaker groups?		
238:14 - 238:20	**MacKay, Kenneth 2022-05-10**	00:00:20	MacKay_K_vol1.77
	238:14 THE DEPONENT: I think at the level that		
	238:15 we've been discussing, I can't think of anything		
	238:16 that would have impacted the overall flow		
	238:17 significantly. So there would have been specific		
	238:18 details that changed, but I don't think, at the		
	238:19 general level that we discussed, anything would		
	238:20 have changed.		
238:22 - 239:02	**MacKay, Kenneth 2022-05-10**	00:00:23	MacKay_K_vol1.78
	238:22 Mr. MacKay, are you familiar with		
	238:23 a message called set playback devices?		
	238:24 A. Yes.		
	238:25 Q. Is set playback devices another type of		
	239:01 message that might be used to initiate the launch		

DESIGNATION	SOURCE	DURATION	ID
	239:02 of a static speaker group?		
239:04 - 239:08	**MacKay, Kenneth 2022-05-10**	00:00:17	MacKay_K_vol1.79
	239:04 THE DEPONENT: I would say that set		
	239:05 playback devices doesn't explicitly launch a		
	239:06 speaker group.		
	239:07 Q. (By Mr. Shea) Okay. So can you unpack		
	239:08 that for me a bit?		
239:10 - 240:08	**MacKay, Kenneth 2022-05-10**	00:01:31	MacKay_K_vol1.80
	239:10 THE DEPONENT: So are you asking me maybe		
	239:11 to provide an example where set playback devices		
	239:12 could cause the launch of a speaker group?		
	239:13 Q. (By Mr. Shea) Yeah. That -- that would		
	239:14 be a helpful starting point.		
	239:15 A. Okay. So one of the purposes of set		
	239:16 playback devices is to initiate what we call a		
	239:17 transfer of a media session. And the target of		
	239:18 that transfer can be a speaker group.		
	239:19 And so if the application in question and		
	239:20 the -- if the receiver application in question		
	239:21 supports real transfer, then as part of the		
	239:22 execution of that transfer, the source device		
	239:23 running the receiver application would -- would		
	239:24 send a message -- would send a launch message to		
	239:25 the target of the transfer and that would cause it		
	240:01 to be launched. But the set -- the set playback		
	240:02 devices message itself doesn't -- wouldn't launch.		
	240:03 So what I'm saying is that set playback		
	240:04 devices can -- can indicate a transfer to a group.		
	240:05 And as a result of that, a launch message will be		
	240:06 sent to the leader of that group, which will -- but		
	240:07 it's not -- it's not caused -- it's not the set		
	240:08 playback message itself that launches the group.		
240:10 - 240:13	**MacKay, Kenneth 2022-05-10**	00:00:15	MacKay_K_vol1.81
	240:10 what device would be the recipient of the		
	240:11 set playback devices message in that scenario?		
	240:12 A. It would be the device where the receiver		
	240:13 app is currently running.		
240:21 - 240:25	**MacKay, Kenneth 2022-05-10**	00:00:20	MacKay_K_vol1.82
	240:21 Q. (By Mr. Shea) And then in that scenario,		

DESIGNATION	SOURCE	DURATION	ID
	240:22 do I understand correctly that you're saying then		
	240:23 that the device that receives the set playback		
	240:24 device message would then be the one that sends the		
	240:25 launch message?		
241:02 - 241:06	**MacKay, Kenneth 2022-05-10**	00:00:25	MacKay_K_vol1.83
	241:02 THE DEPONENT: Yes.		
	241:03 Q. (By Mr. Shea) Now, to your knowledge,		
	241:04 would a set playback devices message be sent from		
	241:05 an app in a scenario where there is no active		
	241:06 stream established?		
241:09 - 241:11	**MacKay, Kenneth 2022-05-10**	00:00:08	MacKay_K_vol1.84
	241:09 THE DEPONENT: I think that it can be,		
	241:10 because it can be sent whenever the Cast session is		
	241:11 established.		
242:05 - 242:14	**MacKay, Kenneth 2022-05-10**	00:00:38	MacKay_K_vol1.85
	242:05 Q. (By Mr. Shea) And in that case, where --		
	242:06 if the target of the transfer request is now a		
	242:07 static group were -- the recipient is the -- of the		
	242:08 set playback device messages the leader, would that		
	242:09 device then, as part of that -- well, you called it		
	242:10 "reshuffling."		
	242:11 But as part of the additional		
	242:12 functionality that that device performs, will it		
	242:13 then send a launch notification to each follower of		
	242:14 the static speaker group?		
242:16 - 242:21	**MacKay, Kenneth 2022-05-10**	00:00:20	MacKay_K_vol1.86
	242:16 THE DEPONENT: Yes. So when the app is		
	242:17 moved to the virtual device representing the group,		
	242:18 the -- assuming this is on the leader -- that would		
	242:19 cause the leader to send out appropriate launch		
	242:20 messages to the followers that are connected to it		
	242:21 for that group.		
243:13 - 243:15	**MacKay, Kenneth 2022-05-10**	00:00:14	MacKay_K_vol1.87
	243:13 Q. (By Mr. Shea) And would it then		
	243:14 be configured to transmit the audio and the time		
	243:15 stamps to the follower once audio playback begins?		
243:17 - 243:17	**MacKay, Kenneth 2022-05-10**	00:00:01	MacKay_K_vol1.88
	243:17 THE DEPONENT: Yes.		

MacKay_K_vol1 - As Played in Court 05/10/23

DESIGNATION	SOURCE	DURATION	ID
255:25 - 256:10	**MacKay, Kenneth 2022-05-10**	00:00:50	MacKay_K_vol1.89

255:25   Let me start by asking, is there a
256:01   specific team or group at Google that's tasked with
256:02   performing testing of physical products to -- to
256:03   evaluate functionality on those products?
256:04 A. I don't think -- I would say -- I
256:05   wouldn't say that there's a Google-wide team. But
256:06   the Nest organization or -- we do have a manual QA
256:07   team for at least some Nest devices.
256:08 Q. Would that manual -- is one of the things
256:09   that that manual QA team does is test the speaker
256:10   group functionality of those Nest devices?

DESIGNATION	SOURCE	DURATION	ID
256:12 - 256:12	**MacKay, Kenneth 2022-05-10**	00:00:01	MacKay_K_vol1.90

256:12   THE DEPONENT: Yes.

DESIGNATION	SOURCE	DURATION	ID
260:21 - 260:23	**MacKay, Kenneth 2022-05-10**	00:00:06	MacKay_K_vol1.91

260:21 Q. (By Mr. Shea) When did Google first
260:22   begin developing its speaker group technology,
260:23   Mr. MacKay?

DESIGNATION	SOURCE	DURATION	ID
261:03 - 261:09	**MacKay, Kenneth 2022-05-10**	00:00:26	MacKay_K_vol1.92

261:03   THE DEPONENT: I don't -- I don't know
261:04   when Google began developing it. When I started
261:05   working on it, I wasn't aware of any previous
261:06   efforts.
261:07 Q. (By Mr. Shea) And when was it that you
261:08   began working on it?
261:09 A. It would have been March of 2015.

DESIGNATION	SOURCE	DURATION	ID
262:16 - 262:21	**MacKay, Kenneth 2022-05-10**	00:00:26	MacKay_K_vol1.93

262:16 Q. (By Mr. Shea) Do you recall then why you
262:17   decided to implement it, in at least the initial
262:18   version of the speaker group technology, the groups
262:19   as static as opposed to dynamic groups?
262:20 A. As I recall, we were trying to be
262:21   compatible with the existing Cast ecosystem.

DESIGNATION	SOURCE	DURATION	ID
262:22 - 262:24	**MacKay, Kenneth 2022-05-10**	00:00:11	MacKay_K_vol1.124

262:22 Q. What was it about static groups that at
262:23   the time made them more compatible with the Cast
262:24   ecosystem than dynamic groups?

DESIGNATION	SOURCE	DURATION	ID
263:01 - 263:09	**MacKay, Kenneth 2022-05-10**	00:00:41	MacKay_K_vol1.94

MacKay_K_vol1 - As Played in Court 05/10/23

DESIGNATION	SOURCE	DURATION	ID
	263:01 THE DEPONENT: It allowed the group to		MacKay_K_vol1.94
	263:02 advertise itself over mDNS, or I guess the leader		
	263:03 of the group to advertise the group over mDNS, as		
	263:04 a -- as a Cast device, and existing sender apps		
	263:05 would be able to use that as a Cast target.		
	263:06 Q. (By Mr. Shea) Are -- in your view, are		
	263:07 there advantages over that implementation relative		
	263:08 to a dynamic group implementation where the group		
	263:09 would not be advertised?		
263:12 - 263:13	**MacKay, Kenneth 2022-05-10**	00:00:04	MacKay_K_vol1.95
	263:12 THE DEPONENT: I would say there are		
	263:13 advantages and disadvantages.		
263:16 - 264:06	**MacKay, Kenneth 2022-05-10**	00:01:11	MacKay_K_vol1.96
	263:16 Can you tell me what you view to be the		
	263:17 advantages of -- of static over dynamics groups?		
	263:18 A. So one advantage might be that the group		
	263:19 is available as a Cast target separately from the		
	263:20 individual devices.		
	263:21 Q. And could you help me understand why you		
	263:22 view that to be an advantage.		
	263:23 A. It might make it easier for users to --		
	263:24 to target their content.		
	263:25 I don't know. I mean, you could see it		
	264:01 either way, I suppose, because dynamic groups you		
	264:02 explicitly select which devices are playing the		
	264:03 content.		
	264:04 Q. But you're saying that the -- with the		
	264:05 dynamic group, the drawback is that you have to		
	264:06 create it at the time?		
264:08 - 264:19	**MacKay, Kenneth 2022-05-10**	00:00:42	MacKay_K_vol1.97
	264:08 THE DEPONENT: Yeah. So the -- the		
	264:09 drawback of a static group would be that the user		
	264:10 has to create it ahead of time. So the user would		
	264:11 need to know what they want to do before they do		
	264:12 it, I guess.		
	264:13 But then the disadvantage of the dynamic		
	264:14 group is that the user has to take an action every		
	264:15 time as they're playing, I suppose, which might --		
	264:16 yeah, I -- I don't know. It's kind of a trade-off,		
	264:17 I suppose.		

MacKay_K_vol1 - As Played in Court 05/10/23

DESIGNATION	SOURCE	DURATION	ID
	264:18 Q. (By Mr. Shea) And when you say "take an 264:19 action every time" --		
264:23 - 264:25	**MacKay, Kenneth 2022-05-10** 264:23 THE DEPONENT: Okay. They have to 264:24 explicitly select the devices instead of targeting 264:25 to a named group.	00:00:17	MacKay_K_vol1.98
270:03 - 270:06	**MacKay, Kenneth 2022-05-10** 270:03 Q. As far as you're aware, was one of 270:04 Google's goals in developing and releasing its 270:05 multizone technology to compete with Sonos' 270:06 multiroom technology?	00:00:11	MacKay_K_vol1.11 7
270:08 - 270:12	**MacKay, Kenneth 2022-05-10** 270:08 THE DEPONENT: Not that I'm aware of. 270:09 Q. (By Mr. Shea) At the time you 270:10 were des- -- designing and developing Google's 270:11 multizone technology in 2015, were you aware of 270:12 Sonos' multiroom technology?	00:00:19	MacKay_K_vol1.11 8
270:14 - 270:17	**MacKay, Kenneth 2022-05-10** 270:14 THE DEPONENT: No. 270:15 Q. (By Mr. Shea) So in 2015, your -- your 270:16 testimony is that you were not aware of Sonos 270:17 having multiroom technology?	00:00:13	MacKay_K_vol1.11 9
270:22 - 270:22	**MacKay, Kenneth 2022-05-10** 270:22 THE DEPONENT: I said yes.	00:00:02	MacKay_K_vol1.12 0
270:25 - 271:01 🔗 T48.1	**MacKay, Kenneth 2022-05-10** 270:25 GOOG-SONOSNDCA-74185, and I think this is going to 271:01 get marked as 48.	00:00:17	MacKay_K_vol1.99
271:08 - 271:15 🔗 T48.1.1	**MacKay, Kenneth 2022-05-10** 271:08 Q. So if you look at the very top -- and -- 271:09 and we can work our way down to the beginning of 271:10 this chain -- but this is an email from -- well, it 271:11 says "eureka-dogfood-discuss@google.com" on behalf 271:12 of somebody named Matt Stuart. And the date at the 271:13 very top is -- is May 21st of 2015. 271:14 Do you see that? 271:15 A. Yes.	00:00:31	MacKay_K_vol1.12 1
271:16 - 271:20	**MacKay, Kenneth 2022-05-10** 271:16 Q. And do you see that there's a	00:00:12	MacKay_K_vol1.10 0

MacKay_K_vol1 - As Played in Court 05/10/23

DESIGNATION	SOURCE	DURATION	ID
🔗 T48.1.5	271:17 distribution list of people here, and then your		
	271:18 name appears as, I think, the last name on the cc		
	271:19 line.		
	271:20 A. Yes.		
271:21 - 271:22	**MacKay, Kenneth 2022-05-10**	00:00:04	MacKay_K_vol1.122
	271:21 Q. Do you recall this email chain?		
	271:22 A. No.		
271:23 - 271:24	**MacKay, Kenneth 2022-05-10**	00:00:07	MacKay_K_vol1.101
	271:23 Q. Do you have any doubts that you received		
	271:24 this email chain in 2015?		
272:01 - 272:02	**MacKay, Kenneth 2022-05-10**	00:00:03	MacKay_K_vol1.102
	272:01 THE DEPONENT: I have no reason to doubt		
	272:02 that I received it.		
272:03 - 272:08	**MacKay, Kenneth 2022-05-10**	00:00:25	MacKay_K_vol1.123
	272:03 Q. (By Mr. Shea) And before we dive in, can		
	272:04 you just tell me what "dog food" means in this		
	272:05 context?		
	272:06 A. "Dog food" is a set of Google employees		
	272:07 that get, I guess, prereleased versions of Google		
	272:08 technology, in general.		
274:11 - 275:04	**MacKay, Kenneth 2022-05-10**	00:00:53	MacKay_K_vol1.103
	274:11 Q. (By Mr. Shea) So then heading a		
🔗 T48.1.2	274:12 little further up the chain, which -- which you've		
	274:13 now been added to, do you see this email on		
	274:14 Wednesday, May 20th, 2018, at 3:39, from		
	274:15 Steve Chen?		
	274:16 A. Yes.		
	274:17 Q. It's about halfway --		
	274:18 A. Uh-huh.		
	274:19 Q. And he says "Are there any plans to		
	274:20 enable grouping cast enabled speakers together		
	274:21 similar to what Sonos does to allow multi-room		
	274:22 playback?"		
	274:23 Do you see that?		
	274:24 A. Yes.		
🔗 T48.1.4	274:25 Q. And then Mr. Shekel responds a short time		
	275:01 later, "Yes." This "is planned and will be cross		
	275:02 OEMs/Brands."		
	275:03 Do you see that?		

DESIGNATION	SOURCE	DURATION	ID
	275:04 A. Yes.		

	Sonos Affirmatives	00:32:12	
	Google Counters	00:06:16	
	TOTAL RUN TIME	**00:38:28**	

Documents linked to video:

T36

T38

T41

T48

T84

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Designation List Report

Mackay, Ken   **2023-01-25**

Sonos Affirmatives	00:27:08
Google Counters	00:01:11
TOTAL RUN TIME	**00:28:19**

F T I ™ CONSULTING

ID: Mackay_K_vol2

Mackay_K_vol2 - As Played in Court 05/10/23

DESIGNATION	SOURCE	DURATION	ID
7:20 - 7:22	**Mackay, Ken 2023-01-25**	00:00:04	Mackay_K_vol2.1

7:20	Q.	Good morning, Mr. MacKay. Good to speak with
7:21		you again.
7:22	A.	Good morning.

DESIGNATION	SOURCE	DURATION	ID
9:13 - 9:13	**Mackay, Ken 2023-01-25**	00:00:04	Mackay_K_vol2.2

| 9:13 | | I'm going to designate this as Exhibit 1320, |

DESIGNATION	SOURCE	DURATION	ID
9:23 - 10:02	**Mackay, Ken 2023-01-25**	00:00:22	Mackay_K_vol2.3

9:23		Are you familiar with this version of the
9:24		multizone_manager file that we're looking at here?
9:25	A.	Generally, yes. I'm not sure what specific
10:01		version has been provided, but I am generally familiar
10:02		with the contents of this file --

DESIGNATION	SOURCE	DURATION	ID
10:23 - 11:07	**Mackay, Ken 2023-01-25**	00:00:27	Mackay_K_vol2.4

10:23	Q.	BY MR. SHEA: So my understanding is there have
10:24		been some updates to the file as it relates to how a
10:25		Google Player behaves when it has been added to a speaker
11:01		group.
11:02		Do you have an understanding as to whether there
11:03		have been any changes made to this multizone_manager file
11:04		that relate to that functionality?
11:05	A.	Yes.
11:06	Q.	And at a high level, can you summarize for me
11:07		what your understanding is of those changes?

DESIGNATION	SOURCE	DURATION	ID
11:09 - 11:12	**Mackay, Ken 2023-01-25**	00:00:20	Mackay_K_vol2.5

11:09		THE WITNESS: So I made a change where when a
11:10		device is added to a group during the group -- during
11:11		that process, it stops whatever it's currently doing.
11:12		Yeah.

DESIGNATION	SOURCE	DURATION	ID
11:17 - 11:25	**Mackay, Ken 2023-01-25**	00:00:32	Mackay_K_vol2.6

11:17		So why don't I have you jump right over to line
11:18		2042 of the multizone_manager file. And that's going to
11:19		be Bates page 1637.
11:20	A.	Yeah, I found it.
11:21	Q.	Okay, great.
11:22		And for the record, this is the
11:23		RefreshDeviceGroups() function.
11:24		Do you see that?
11:25	A.	Yes.

Mackay_K_vol2 - As Played in Court 05/10/23

DESIGNATION	SOURCE	DURATION	ID
13:22 - 13:24	**Mackay, Ken 2023-01-25**	00:00:11	Mackay_K_vol2.7

13:22   Q. BY MR. SHEA: And with the -- that

13:23   function in front of you, are you able to more

13:24   specifically identify for me what change was made?

DESIGNATION	SOURCE	DURATION	ID
14:01 - 14:08	**Mackay, Ken 2023-01-25**	00:00:27	Mackay_K_vol2.8

14:01   THE WITNESS: Yes. I added the call to

14:02   StopCurrentApp() on line 2077.

14:03   Q. BY MR. SHEA: Other than that change that you

14:04   mentioned -- and we'll circle back, and I want to ask a

14:05   little bit more about it. But other than that change,

14:06   did you make any other changes to this

14:07   RefreshDeviceGroups() function?

14:08   A. No.

DESIGNATION	SOURCE	DURATION	ID
22:13 - 22:15	**Mackay, Ken 2023-01-25**	00:00:08	Mackay_K_vol2.9

22:13   With respect to this call to StopCurrentApp(),

22:14   can you explain to me at a high level what that function

22:15   does?

DESIGNATION	SOURCE	DURATION	ID
22:17 - 23:05	**Mackay, Ken 2023-01-25**	00:01:03	Mackay_K_vol2.10

22:17   THE WITNESS: So as I recall, it calls into our

22:18   application manager code and -- and just so there's a

22:19   separate application manager class, I guess, that manages

22:20   everything that's running on the device. And so we just

22:21   call into that and tell it to stop whatever is currently

22:22   happening.

22:23   Q. BY MR. SHEA: Okay. And then with respect to

22:24   the function 2078, at line 2078, the AddGroup() function,

22:25   can you tell me at a high level what that does?

23:01   A. So that creates the multizone group structure

23:02   and configures it and adds it to the groups_map.

23:03   I think the source -- I think it's in this file

23:04   as well. We should be able to find it if you want to

23:05   look at that.

DESIGNATION	SOURCE	DURATION	ID
26:21 - 26:24	**Mackay, Ken 2023-01-25**	00:00:19	Mackay_K_vol2.11

26:21   Q. BY MR. SHEA: Okay. And then did prior --

26:22   source code for prior versions of firmware make a call to

26:23   AddGroup() as part of the RefreshDeviceGroups() function?

26:24   A. Yes.

DESIGNATION	SOURCE	DURATION	ID
27:04 - 27:07	**Mackay, Ken 2023-01-25**	00:00:16	Mackay_K_vol2.12

27:04   Q. And in this recent update to the source code

Mackay_K_vol2 - As Played in Court 05/10/23

DESIGNATION	SOURCE	DURATION	ID
	27:05 that -- that you made, Mr. MacKay, did you make any		
	27:06 changes to the AddGroup() function itself?		
	27:07 A. No.		
28:02 - 28:03	**Mackay, Ken 2023-01-25**	00:00:07	Mackay_K_vol2.13
	28:02 First, I'm		
	28:03 going to introduce this as Exhibit 1321.		
29:03 - 29:11	**Mackay, Ken 2023-01-25**	00:00:40	Mackay_K_vol2.14
	29:03 could you explain for me when we say that a		
	29:04 StopCurrentApp() function is called on the device, what		
	29:05 does that StopCurrentApp() function do to the device when		
	29:06 called?		
	29:07 A. So my understanding is that any app that's		
	29:08 currently running will be stopped, or an app is -- well,		
	29:09 I don't know how to explain an app. I guess it's like a		
	29:10 piece of code that can be running that's performing		
	29:11 something for the user.		
30:25 - 31:03	**Mackay, Ken 2023-01-25**	00:00:13	Mackay_K_vol2.15
	30:25 And when we talk about "current" in this		
	31:01 context, can you tell me what that means? You know,		
	31:02 "current app," is that distinguishing from other kinds of		
	31:03 apps, for instance?		
31:05 - 31:20	**Mackay, Ken 2023-01-25**	00:01:11	Mackay_K_vol2.16
	31:05 THE WITNESS: So I'm not sure of the exact		
	31:06 details, but I think we only allow one app to be running		
	31:07 at a time on -- in cast shell. And so the current app is		
	31:08 the one that's currently running, but there might be		
	31:09 other apps that are in sort of a preloaded background		
	31:10 state that are ready to become active if the user casts.		
	31:11 So it's kind of like a performance optimization.		
	31:12 And I believe also when -- when you cast, if		
	31:13 there is a different app already running, then the app		
	31:14 that you've requested is marked as a pending app so that		
	31:15 the current app that's currently running, and then		
	31:16 there's a pending app which the user has requested, and		
	31:17 then as part of the casting process, that shuts down the		
	31:18 previously running app and then promotes the pending app		
	31:19 to current.		
	31:20 So I think that's what the distinction is.		
32:01 - 32:04	**Mackay, Ken 2023-01-25**	00:00:18	Mackay_K_vol2.17

DESIGNATION	SOURCE	DURATION	ID
	32:01 So in a scenario where a user is using YouTube 32:02 Music to cast to a player, would -- would that then 32:03 involve a YouTube Music receiver app running on the 32:04 player?		Mackay_K_vol2.17
32:06 - 32:06	**Mackay, Ken 2023-01-25**	00:00:02	Mackay_K_vol2.18
	32:06 THE WITNESS: Yes. I think so, yes.		
32:13 - 32:18	**Mackay, Ken 2023-01-25**	00:00:28	Mackay_K_vol2.19
	32:13 Q. BY MR. SHEA: So when you -- we talked a little 32:14 bit earlier about, you know, some of the things that 32:15 might happen when you first boot up a player. 32:16 As far as you're aware, when you first boot up a 32:17 player, will that player start running any apps, as we're 32:18 using that phrase, at that time?		
32:20 - 32:22	**Mackay, Ken 2023-01-25**	00:00:07	Mackay_K_vol2.20
	32:20 THE WITNESS: Yes, in some cases. 32:21 Q. BY MR. SHEA: Okay. Can you tell me what those 32:22 cases would be?		
32:24 - 33:08	**Mackay, Ken 2023-01-25**	00:00:50	Mackay_K_vol2.21
	32:24 THE WITNESS: I think it runs -- at least the 32:25 Chromecast devices run what we call the -- the idle 33:01 screen app. 33:02 Q. BY MR. SHEA: Okay. And maybe another question 33:03 is if -- sorry, one step back. 33:04 We've been talking about this concept of running 33:05 apps. Is it possible for a player to be running an app 33:06 for a media service without actively playing content from 33:07 that media service? 33:08 A. Yes.		
36:07 - 36:14	**Mackay, Ken 2023-01-25**	00:00:32	Mackay_K_vol2.23
	36:07 Q. BY MR. SHEA: So then is it your understanding 36:08 that the end result of a StopCurrentApp() function is 36:09 that the player will no longer be running any receiver 36:10 app -- any current receiver app at least? 36:11 A. Yes, that's the intention. 36:12 Q. But based what you just said, it's possible that 36:13 it may still be running an app that's preloaded in the 36:14 background?		
36:16 - 36:17	**Mackay, Ken 2023-01-25**	00:00:03	Mackay_K_vol2.24
	36:16 THE WITNESS: So the background apps are not in		

DESIGNATION	SOURCE	DURATION	ID

	36:17 a running state.		
37:03 - 37:08	**Mackay, Ken 2023-01-25**	00:00:34	Mackay_K_vol2.25

37:03   Q.   So with respect to this StopCurrentApp()

37:04   function, will that perform any checking of group state

37:05   as part of stopping the app?

37:06   A.   No, I don't think so.

37:07   Q.   Is there even any information about a group that

37:08   would be passed into the StopCurrentApp() function?

37:10 - 38:06	**Mackay, Ken 2023-01-25**	00:01:21	Mackay_K_vol2.26

37:10   THE WITNESS: Well, if we look at the source

37:11   code, it doesn't take any arguments.

37:12   Q.   BY MR. SHEA: Right. And so it's probably a

37:13   more precise way to -- to kind of say what I was asking,

37:14   which is that because that source code does not take any

37:15   arguments, that function, that therein -- thereby means

37:16   that it -- there's no group information of any kind

37:17   passed into that function; is that right?

37:18   A.   Correct. There's no -- no group information is

37:19   passed into the function. That's right.

37:20   Q.   And to your knowledge, would this call to

37:21   StopCurrentApp() that is -- you added to the

37:22   RefreshDeviceGroups() function cause a speaker group to

37:23   be launched?

37:24   A.   Sorry, is the question whether StopCurrentApp()

37:25   causes the speaker group to be launched?

38:01   Q.   Yeah, that's my question.

38:02   A.   No.

38:03   Q.   And I know we've -- in prior depositions,

38:04   Mr. MacKay, we've talked about that concept, but just for

38:05   my own refresh, can you remind me what it means for a

38:06   speaker group to be launched?

38:08 - 38:13	**Mackay, Ken 2023-01-25**	00:00:34	Mackay_K_vol2.27

38:08   THE WITNESS: So when a user casts to a group,

38:09   then the app starts up on the device that's acting as the

38:10   group leader, and that puts the group in the launch state

38:11   with -- with that app, I guess.

38:12   So there's a -- there's a lot of steps. I don't

38:13   know how much you want me to go through.

38:23 - 39:05	**Mackay, Ken 2023-01-25**	00:00:36	Mackay_K_vol2.28

DESIGNATION	SOURCE	DURATION	ID

	38:23 Q. Is there also, as part of that launching		Mackay_K_vol2.28
	38:24 process, an app that starts up on the followers of the		
	38:25 group?		
	39:01 A. Yes. So the -- the group leader starts the app,		
	39:02 sort of bound to the group, and sends a launch command to		
	39:03 the connected followers. And when the connected		
	39:04 followers receive that launch command, that causes them		
	39:05 to launch the multizone follower application.		
39:12 - 40:03	**Mackay, Ken 2023-01-25**	00:01:25	Mackay_K_vol2.29
	39:12 Q. BY MR. SHEA: And then once the group is		
	39:13 launched, do I understand correctly then the speakers --		
	39:14 the Google Players in that launched group will at that		
	39:15 point be configured for a grouped playback?		
	39:16 A. So I would say that once a device receives a		
	39:17 launch command from the group leader, then -- and it		
	39:18 launches the multizone follower app, then it's taking		
	39:19 part in group playback.		
	39:20 Q. And then from the leader perspective, is it also		
	39:21 the case that once that functionality happens on the		
	39:22 lead -- on the followers' side, then you would say the		
	39:23 leader is also taking part in group playback?		
	39:24 A. So I think the leader doesn't care what the		
	39:25 followers are doing. I think as soon as the app has		
	40:01 finished launching on -- on the group virtual device,		
	40:02 then that -- the leader device is taking part in group		
	40:03 playback.		
40:13 - 40:15	**Mackay, Ken 2023-01-25**	00:00:08	Mackay_K_vol2.30
	40:13 Is -- is another state that a group can be in an		
	40:14 unlaunched state?		
	40:15 A. Yes.		
40:24 - 41:09	**Mackay, Ken 2023-01-25**	00:00:41	Mackay_K_vol2.31
	40:24 So like when -- when a group is unlaunched, can		
	40:25 the members of that group play audio together as part of		
	41:01 that particular unlaunched group?		
	41:02 A. Well, they can if you -- if you cast to the		
	41:03 group.		
	41:04 Q. Right. Although do I understand correctly that		
	41:05 when you cast to the group, that then causes the group to		
	41:06 become launched?		
	41:07 A. Yeah. So I guess maybe what you're asking is		

DESIGNATION	SOURCE	DURATION	ID
	41:08 would we consider the devices in the group to be playing		
	41:09 as part of the group when the group is unlaunched?		
41:12 - 41:12	**Mackay, Ken 2023-01-25**	00:00:03	Mackay_K_vol2.32
	41:12 But what are your thoughts on that?		
41:14 - 41:17	**Mackay, Ken 2023-01-25**	00:00:13	Mackay_K_vol2.33
	41:14 THE WITNESS: So I would say that the devices --		
	41:15 if -- if a group is in the unlaunched state, then the		
	41:16 devices that are members of that group would not be		
	41:17 playing as part of that group.		
43:23 - 44:03	**Mackay, Ken 2023-01-25**	00:00:32	Mackay_K_vol2.34
	43:23 Q. BY MR. SHEA: So maybe tie it together.		
	43:24 So in a scenario where the RefreshDeviceGroups()		
	43:25 function is being carried out while handling a join group		
	44:01 message for a newly created static group, it's the case		
	44:02 that the AddGroup() function will not result in the		
	44:03 static group becoming launched; is that correct?		
44:05 - 44:07	**Mackay, Ken 2023-01-25**	00:00:08	Mackay_K_vol2.35
	44:05 THE WITNESS: Yes. The execution of the		
	44:06 AddGroup() function itself will not cause the device to		
	44:07 be launched as part of the group.		
47:13 - 47:15	**Mackay, Ken 2023-01-25**	00:00:16	Mackay_K_vol2.36
	47:13 Q. Okay. Are there scenarios that could exist		
	47:14 where the player is running multiple different receiver		
	47:15 apps associated with multiple different session IDs?		
47:16 - 47:23	**Mackay, Ken 2023-01-25**	00:00:41	Mackay_K_vol2.59
	47:16 A. I think in the context of dynamic groups, there		
	47:17 could be internally, but it wouldn't be visible to the		
	47:18 user.		
	47:19 Q. Is -- okay. If in a scenario where there are		
	47:20 multiple current apps running potentially in a dynamic		
	47:21 grouping scenario, will the StopCurrentApp() function		
	47:22 stop one of those apps or would it stop all of those		
	47:23 apps?		
47:25 - 48:09	**Mackay, Ken 2023-01-25**	00:00:53	Mackay_K_vol2.37
	47:25 THE WITNESS: So I think -- I think what it does		
	48:01 is it stops the app that's visible to the user.		
	48:02 Q. BY MR. SHEA: And so in a scenario where there		
	48:03 might be another app running that's not visible to a		

DESIGNATION	SOURCE	DURATION	ID
	48:04 user, the StopCurrentApp() function would not stop that		
	48:05 app; is that right?		
	48:06 A. I think so, yes. Or at least, so -- yeah. I		
	48:07 don't -- I don't know. I'd have to look through the code		
	48:08 to see exactly how it works, but I think that the		
	48:09 non-visible apps are not considered to be current.		
52:02 - 52:16	**Mackay, Ken 2023-01-25**	00:01:03	Mackay_K_vol2.38
	52:02 we talked about this function a lot, the		
	52:03 RefreshDeviceGroups() function. And I want to just maybe		
	52:04 walk through a couple scenarios and make sure I		
	52:05 understand how that function will impact or how the		
	52:06 player is going to behave based on that function, source		
	52:07 code function.		
	52:08 So let me go through a first one with you, and		
	52:09 then I think as we get through the first one that the		
	52:10 rest of them will go a little quicker.		
	52:11 So for this first scenario, here's the -- the		
	52:12 background that I want you to keep in mind. I want --		
	52:13 we're going to have two Google Players, neither of which		
	52:14 are engaging in active playback, and a user creates a new		
	52:15 static speaker group that includes those two players.		
	52:16 A. Okay.		
54:05 - 54:08	**Mackay, Ken 2023-01-25**	00:00:17	Mackay_K_vol2.39
	54:05 - when the player makes a		
	54:06 call to the StopCurrentApp() function, and the AddGroup()		
	54:07 function in this scenario, what will happen to the		
	54:08 behavior of the player?		
54:10 - 54:21	**Mackay, Ken 2023-01-25**	00:00:47	Mackay_K_vol2.40
	54:10 THE WITNESS: So specifically when you call		
	54:11 StopCurrentApp(), since there's no current app running,		
	54:12 there's -- there's nothing to stop. And then when		
	54:13 AddGroup() is called, it will create the multizone group		
	54:14 structure for the group.		
	54:15 And then farther down in RefreshDeviceGroups(),		
	54:16 it will start the leader election process for that		
	54:17 device.		
	54:18 And I think -- I forget, but somewhere in that		
	54:19 process, we also update the MD&S record for the device to		
	54:20 indicate that's part of the group. So it becomes		
	54:21 discoverable.		

DESIGNATION	SOURCE	DURATION	ID
54:24 - 55:03	**Mackay, Ken 2023-01-25**	00:00:24	Mackay_K_vol2.41

54:24	Is -- with respect to the behavior of the player
54:25	itself, I think you said that because it wasn't engaging
55:01	in playback before it received the join group message, it
55:02	would remain in the same state after it receives that
55:03	message; is that right?

DESIGNATION	SOURCE	DURATION	ID
55:05 - 55:14	**Mackay, Ken 2023-01-25**	00:00:38	Mackay_K_vol2.42

55:05		THE WITNESS: So if there is no current app to
55:06		stop, then that's -- it will -- there will still be no
55:07		current app after StopCurrentApp() runs.
55:08	Q.	BY MR. SHEA: Right.
55:09		So in this scenario, then, do I understand
55:10		correctly that the player will effectively behave in the
55:11		same way that it would have behaved in prior firmware
55:12		versions of -- of the software?
55:13	A.	Prior to adding the StopCurrentApp() call?
55:14	Q.	Yeah.

DESIGNATION	SOURCE	DURATION	ID
55:16 - 55:22	**Mackay, Ken 2023-01-25**	00:00:22	Mackay_K_vol2.43

55:16		THE WITNESS: Well, it will still call
55:17		StopCurrentApp(), but it -- other than that, it won't do
55:18		anything differently.
55:19	Q.	BY MR. SHEA: Right. It's not going to -- the
55:20		StopCurrentApp() function in this case is not going to
55:21		cause any change to -- to the operational behavior of the
55:22		player; correct?

DESIGNATION	SOURCE	DURATION	ID
55:24 - 56:22	**Mackay, Ken 2023-01-25**	00:01:52	Mackay_K_vol2.44

55:24		THE WITNESS: Yes.
55:25	Q.	BY MR. SHEA: And then in this scenario we've
56:01		laid out where we're creating a new group that is a
56:02		static group, do I understand correctly that the
56:03		functionality -- the end result of this process will be
56:04		the creation of a new speaker group that is in an
56:05		unlaunched state?
56:06	A.	Yes.
56:07	Q.	And am I correct that at no point during the
56:08		process that the player runs in order to add itself to
56:09		the group or memorialize it has been added to the group
56:10		is that speaker group ever launched even in some
56:11		temporary capacity?

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DESIGNATION	SOURCE	DURATION	ID

56:12   A.   Yes.

56:13   Q.   So then what I want to ask now is a little bit

56:14   of a variant of the scenario. We've been talking in

56:15   terms of the player not running a current app.

56:16   What I want to ask you now about is the same

56:17   scenario except the player is running a current app, but

56:18   is not engaging in active playback, which we -- I think

56:19   we talked about earlier is a possibility, that you could

56:20   be running a current app but not actively engaging in

56:21   playback at that time.

56:22   Does that make sense?

| 56:24 - 57:03 | **Mackay, Ken 2023-01-25** | 00:00:15 | Mackay_K_vol2.45 |

56:24   THE WITNESS: So prior to the user creating the

56:25   new group, the player A, for example, is -- is running

57:01   some app, but it's not playing media.

57:02   Q.   BY MR. SHEA: Exactly.

57:03   A.   Yes.

| 57:04 - 57:10 | **Mackay, Ken 2023-01-25** | 00:00:26 | Mackay_K_vol2.60 |

57:04   Q.   So in that scenario, can you explain to me what

57:05   happens when -- or maybe I can just ask you: Is there

57:06   any change in what happens when the RefreshDeviceGroups()

57:07   function gets called relative to the scenario we just

57:08   discussed?

57:09   A.   Yes.

57:10   Q.   And what is that change?

| 57:12 - 57:14 | **Mackay, Ken 2023-01-25** | 00:00:10 | Mackay_K_vol2.61 |

57:12   THE WITNESS: So since there is a current app in

57:13   this case, in this scenario, the StopCurrentApp() call

57:14   would cause that app to stop.

| 57:15 - 57:17 | **Mackay, Ken 2023-01-25** | 00:00:18 | Mackay_K_vol2.46 |

57:15   Q.   BY MR. SHEA: Now in that scenario, do you agree

57:16   that the playback state of the player does not change

57:17   before and after it has been added to the group?

| 57:19 - 57:21 | **Mackay, Ken 2023-01-25** | 00:00:09 | Mackay_K_vol2.47 |

57:19   THE WITNESS: So since it wasn't playing media

57:20   before, stopping the app doesn't cause it to change

57:21   whether or not it's playing media.

| 60:17 - 61:03 | **Mackay, Ken 2023-01-25** | 00:00:52 | Mackay_K_vol2.48 |

60:17   Q.   BY MR. SHEA: Now in this scenario, the -- as

DESIGNATION	SOURCE	DURATION	ID

60:18　　with the previous scenario, do I understand correctly
60:19　　that when you create this group with this player that's
60:20　　been running an app but not engaging in playback, that
60:21　　the group will not get launched as part of the creation
60:22　　process; is that correct?
60:23　A.　Yes.
60:24　Q.　And then the third scenario is just a further
60:25　　variant, where now instead of the player having a running
61:01　　app and not engaging in active playback, I want to talk
61:02　　about a scenario where the player is engaging in active
61:03　　playback in an individual capacity.

| 61:04 - 61:05 | **Mackay, Ken 2023-01-25** | 00:00:14 | Mackay_K_vol2.62 |

61:04　　In that scenario, what will happen when the
61:05　　add -- the RefreshDeviceGroups() function runs?

| 61:07 - 61:12 | **Mackay, Ken 2023-01-25** | 00:00:21 | Mackay_K_vol2.63 |

61:07　　THE WITNESS: So if there is a -- if there is a
61:08　　current app that's playing media, when we call
61:09　　StopCurrentApp() within the RefreshDeviceGroups()
61:10　　function, that will cause that current app to be stopped,
61:11　　which will stop the media playback that that app is
61:12　　doing.

| 61:13 - 61:18 | **Mackay, Ken 2023-01-25** | 00:00:24 | Mackay_K_vol2.49 |

61:13　Q.　BY MR. SHEA: And in this third scenario, do I
61:14　　understand correctly that at no point will the new
61:15　　speaker group to which the player is being added become
61:16　　launched as part of the process for creating this speaker
61:17　　group?
61:18　A.　Yes.

| 68:17 - 68:20 | **Mackay, Ken 2023-01-25** | 00:00:24 | Mackay_K_vol2.50 |

68:17　Q.　Okay. And do I understand correctly that once
68:18　　you set up that default music service provider that you
68:19　　can initiate playback on Google Players without actually
68:20　　having to select what music you want to play?

| 68:22 - 69:01 | **Mackay, Ken 2023-01-25** | 00:00:31 | Mackay_K_vol2.51 |

68:22　　THE WITNESS: Yes, I think so.
68:23　Q.　BY MR. SHEA: So if I have that default music
68:24　　set up, and I then, for instance, use a voice command to
68:25　　say to one of the players in my system, "Play music,"
69:01　　will that then cause the player to begin playing music?

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DESIGNATION	SOURCE	DURATION	ID
69:03 - 69:09	**Mackay, Ken 2023-01-25**	00:00:29	Mackay_K_vol2.52

	69:03	THE WITNESS: Yes. So I think the way it works
	69:04	is that it launches the default app that you selected and
	69:05	then basically tells it to choose some random music to
	69:06	start playing.
	69:07	Q. BY MR. SHEA: And when it launches that default
	69:08	music app, will it launch it in an individual capacity or
	69:09	in a group capacity?

DESIGNATION	SOURCE	DURATION	ID
69:11 - 69:15	**Mackay, Ken 2023-01-25**	00:00:17	Mackay_K_vol2.53

	69:11	THE WITNESS: I think it depends on the exact
	69:12	voice command that you give.
	69:13	Q. BY MR. SHEA: Okay. If the voice command is
	69:14	just "play music," do you know which way it will launch
	69:15	the app?

DESIGNATION	SOURCE	DURATION	ID
69:17 - 69:18	**Mackay, Ken 2023-01-25**	00:00:04	Mackay_K_vol2.54

	69:17	THE WITNESS: I think it just starts playback on
	69:18	the single -- single device.

DESIGNATION	SOURCE	DURATION	ID
74:10 - 74:13	**Mackay, Ken 2023-01-25**	00:00:14	Mackay_K_vol2.55

	74:10	Q. BY MR. SHEA: Do you know, are there still some
	74:11	devices today that -- that are running a firmware version
	74:12	that doesn't -- that wasn't compiled based on the changes
	74:13	you made?

DESIGNATION	SOURCE	DURATION	ID
74:15 - 75:01	**Mackay, Ken 2023-01-25**	00:00:38	Mackay_K_vol2.56

	74:15	THE WITNESS: So we have a large number of
	74:16	devices that don't receive updates, anymore. And so
	74:17	those wouldn't have received an update that contains
	74:18	those changes.
	74:19	Q. BY MR. SHEA: Can you give me an example of what
	74:20	that -- what kind of device that might be that wouldn't
	74:21	receive the updates?
	74:22	A. So, for example, the -- the large speaker that
	74:23	we made. I forget what we called it.
	74:24	Q. The Home Max?
	74:25	A. Yeah. That one is not receiving updates,
	75:01	anymore.

DESIGNATION	SOURCE	DURATION	ID
75:03 - 75:06	**Mackay, Ken 2023-01-25**	00:00:20	Mackay_K_vol2.57

	75:03	Q. BY MR. SHEA: And so in that case, if -- if a
	75:04	user were to add a Home Max to a speaker group today, the
	75:05	StopCurrentApp() function would not run on that player as

DESIGNATION	SOURCE	DURATION	ID
	75:06 part of the RefreshDeviceGroups()?		
75:08 - 75:08	**Mackay, Ken 2023-01-25**	00:00:02	Mackay_K_vol2.58
	75:08 THE WITNESS: Correct.		

Sonos Affirmatives	00:27:08
Google Counters	00:01:11
TOTAL RUN TIME	**00:28:19**

As Played in Court 05/12/23

Designation List Report

Kowalski, Tim   **2023-05-08**

Sonos Affirmatives	00:10:30
TOTAL RUN TIME	**00:10:30**

Documents linked to video:
T8240

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Kowalski_T - As Played in Court 05/12/23

DESIGNATION	SOURCE	DURATION	ID
10:05 - 10:07	**Kowalski, Tim 2023-05-08**	00:00:05	Kowalski_T.1

10:05   Can you please state your full name for

10:06   the record?

10:07   A.   Timothy Michael Kowalski.

DESIGNATION	SOURCE	DURATION	ID
10:11 - 10:12	**Kowalski, Tim 2023-05-08**	00:00:03	Kowalski_T.2

10:11   Q.   And who are you employed by?

10:12   A.   Google.

DESIGNATION	SOURCE	DURATION	ID
15:07 - 15:11	**Kowalski, Tim 2023-05-08**	00:00:15	Kowalski_T.3

15:07   Q.   How long have you worked at Google LLC?

15:08   A.   A little over ten years. I think I started

15:09   in September of 2012.

15:10   Q.   And what is your current title?

15:11   A.   Senior counsel.

DESIGNATION	SOURCE	DURATION	ID
15:15 - 15:21	**Kowalski, Tim 2023-05-08**	00:00:29	Kowalski_T.4

15:15   Q.   What are your job responsibilities in your

15:16   current position?

15:17   A.   I manage the patent and transactions team.

15:18   Q.   What does that entail?

15:19   A.   Managing a group of attorneys, the overall

15:20   work stream or focus of the group is to negotiate and

15:21   execute patent licenses on behalf of Google.

DESIGNATION	SOURCE	DURATION	ID
16:17 - 16:22	**Kowalski, Tim 2023-05-08**	00:00:20	Kowalski_T.5

16:17   Q.   Just briefly, what formal education do you

16:18   have?

16:19   A.   I received a B.S. in mechanical engineering

16:20   from Purdue University and then my law degree from

16:21   what used to be the John Marshall Law School, now is

16:22   the University of Illinois Chicago law school.

DESIGNATION	SOURCE	DURATION	ID
18:14 - 18:15	**Kowalski, Tim 2023-05-08**	00:00:06	Kowalski_T.6

18:14   Q.   Do you use any Sonos products?

18:15   A.   Yes.

DESIGNATION	SOURCE	DURATION	ID
18:20 - 18:23	**Kowalski, Tim 2023-05-08**	00:00:14	Kowalski_T.7

18:20   Q.   In what time frame did you acquire these

18:21   Sonos products for personal use?

18:22   A.   Sometime in 2015, 2016 time frame when we

18:23   were building our house.

DESIGNATION	SOURCE	DURATION	ID
19:04 - 19:06	**Kowalski, Tim 2023-05-08**	00:00:12	Kowalski_T.8

19:04   Q.   Approximately how many Sonos products do

Kowalski_T - As Played in Court 05/12/23

DESIGNATION	SOURCE	DURATION	ID
	19:05 you own?		
	19:06 A. Six or eight maybe, probably eight.		
22:09 - 22:10	**Kowalski, Tim 2023-05-08**	00:00:00	Kowalski_T.9
	22:09 (Whereupon, Exhibit 1 was marked for		
	22:10 identification.)		
58:19 - 59:22	**Kowalski, Tim 2023-05-08**	00:01:36	Kowalski_T.10
	58:19 Q. Do you have an understanding of the		
	58:20 distinction between an operating company versus a		
	58:21 nonpracticing entity?		
	58:22 A. Yes, as a general matter I do.		
	58:23 Q. What is that understanding?		
	58:24 A. Well, I understand an operating company is		
	58:25 in the business of selling products and a -- I'm		
	59:01 sorry, what was the other term you used?		
	59:02 Q. My question was what your understanding is		
	59:03 of the distinction between an operating company		
	59:04 versus a nonpracticing entity?		
	59:05 A. Okay. So, yes. A general high-level		
	59:06 understanding of a nonpracticing entity is a company		
	59:07 that is not involved in selling products and therefore		
	59:08 isn't using its patents.		
	59:09 Q. So is it your understanding that an		
	59:10 operating company is in the business of selling		
	59:11 products while a nonpracticing entity is not in the		
	59:12 business of selling products?		
	59:13 A. Generally, yes.		
	59:14 Q. Do you understand Sonos, Inc. to be a		
	59:15 nonpracticing entity?		
	59:16 A. No. My understanding is Sonos sells		
	59:17 products. In fact, we talked about the ones that I		
	59:18 purchased earlier.		
	59:19 Q. Do you understand Sonos to be a competitor		
	59:20 to Google?		
	59:21 A. In what sense?		
	59:22 Q. In any sense.		
59:24 - 60:02	**Kowalski, Tim 2023-05-08**	00:00:12	Kowalski_T.11
	59:24 THE WITNESS: At one point in time we were		
	59:25 both selling speakers. So we may have been		
	60:01 competitive with respect to speakers at one point in		
	60:02 time.		

Kowalski_T - As Played in Court 05/12/23

DESIGNATION	SOURCE	DURATION	ID
60:04 - 60:11	**Kowalski, Tim 2023-05-08**	00:00:43	Kowalski_T.12
	60:04 Q. And at what point in time was that?		
	60:05 A. I think around -- we're not really selling		
	60:06 speakers anymore to my knowledge. I know in 2017		
	60:07 roughly, I may be off by a year or two, we sold what I		
	60:08 refer to as a premium speaker.		
	60:09 Q. Is it your understanding that Sonos and		
	60:10 Google were competitors in the speaker market at one		
	60:11 point in time?		
60:13 - 60:16	**Kowalski, Tim 2023-05-08**	00:00:08	Kowalski_T.13
	60:13 THE WITNESS: Yes, at least one point I		
	60:14 would say competitors in the high-end speaker market		
	60:15 at one point in time, premium speaker market at one		
	60:16 point in time.		
65:09 - 65:09	**Kowalski, Tim 2023-05-08**	00:00:04	Kowalski_T.14
	65:09 Q. Has Google ever tracked Sonos's patents?		
65:16 - 65:17	**Kowalski, Tim 2023-05-08**	00:00:05	Kowalski_T.15
	65:16 THE WITNESS: I don't think I have any		
	65:17 non-privileged information that's responsive.		
66:05 - 66:06	**Kowalski, Tim 2023-05-08**	00:00:04	Kowalski_T.16
	66:05 Q. Has Google ever done any searches for		
	66:06 Sonos patents?		
66:09 - 66:11	**Kowalski, Tim 2023-05-08**	00:00:05	Kowalski_T.17
	66:09 THE WITNESS: I don't think I have any		
	66:10 non-privileged information that's responsive to that		
	66:11 question.		
66:13 - 66:14	**Kowalski, Tim 2023-05-08**	00:00:04	Kowalski_T.18
	66:13 Q. Has Google ever attempted to locate family		
	66:14 members of Sonos patents?		
66:17 - 66:22	**Kowalski, Tim 2023-05-08**	00:00:13	Kowalski_T.19
	66:17 THE WITNESS: Again, I don't have any		
	66:18 non-privileged information to answer in response to		
	66:19 that question.		
	66:20 BY MR. KOLKER:		
	66:21 Q. Did Google make an effort to learn when		
	66:22 Sonos filed new patents?		
66:25 - 67:01	**Kowalski, Tim 2023-05-08**	00:00:05	Kowalski_T.20

Kowalski_T - As Played in Court 05/12/23

DESIGNATION	SOURCE	DURATION	ID
	66:25 THE WITNESS: I don't have non-privileged		Kowalski_T.20
	67:01 information responsive to that question.		
86:23 - 86:24	**Kowalski, Tim 2023-05-08**	00:00:08	Kowalski_T.24
🔗 T8240.1	86:23 Q. Mr. Kowalski, can you pull up what we		
	86:24 marked as Deposition Exhibit Number 1?		
87:04 - 87:05	**Kowalski, Tim 2023-05-08**	00:00:04	Kowalski_T.25
🔗 T8240.1.1	87:04 Q. Would you take a minute to review the		
	87:05 first page of this document.		
87:07 - 87:10	**Kowalski, Tim 2023-05-08**	00:00:12	Kowalski_T.26
	87:07 Q. Did reviewing that first page refresh your		
	87:08 recollection as to whether Google filed an action		
	87:09 for declaratory judgment of noninfringement of the		
	87:10 '966 patent?		
87:13 - 87:15	**Kowalski, Tim 2023-05-08**	00:00:10	Kowalski_T.27
	87:13 THE WITNESS: I see that this document		
	87:14 shows that Google filed a declaratory judgment		
	87:15 action of noninfringement of the '966 patent.		
87:17 - 88:03	**Kowalski, Tim 2023-05-08**	00:00:41	Kowalski_T.28
🔗 T8240.12	87:17 Q. If you can go ahead and go down to		
	87:18 Page 12, which is the second-to-last page of the		
	87:19 document.		
	87:20 A. Yes, I think I'm there.		
🔗 T8240.12.1	87:21 Q. For the record, I'm looking at the		
	87:22 signature page which has a date and a signature by		
	87:23 Google attorneys.		
	87:24 Is that what you're looking at?		
	87:25 A. Yes.		
	88:01 Q. Do you see that says that this document is		
	88:02 dated September 28th, 2020?		
	88:03 A. I see that.		
88:12 - 88:14	**Kowalski, Tim 2023-05-08**	00:00:12	Kowalski_T.29
	88:12 Q. And just to make sure we're looking at the		
🔗 T8240.12.2	88:13 same document, does the case number read		
	88:14 3:20-cv-06754, dash, followed by two letters?		
88:15 - 88:19	**Kowalski, Tim 2023-05-08**	00:00:15	Kowalski_T.30
	88:15 A. Yes.		
	88:16 Q. Okay. Any reason to doubt that this		
	88:17 document was filed by Google on September 28th,		

Kowalski_T - As Played in Court 05/12/23

DESIGNATION	SOURCE	DURATION	ID
	88:18 2020?		
	88:19 A. I don't have any reason to doubt that.		
89:08 - 89:10	**Kowalski, Tim 2023-05-08**	00:00:08	Kowalski_T.31
	89:08 Q. Do you have any understanding as to		
	89:09 whether this declaratory judgment action alleges		
	89:10 that Google did not infringe the '966 patent?		
89:12 - 89:14	**Kowalski, Tim 2023-05-08**	00:00:09	Kowalski_T.32
	89:12 THE WITNESS: I believe this document is		
	89:13 Google is seeking a declaratory judgment of		
	89:14 noninfringement of the '966 patent.		
92:02 - 92:09 ✖ Clear	**Kowalski, Tim 2023-05-08**	00:00:18	Kowalski_T.33
	92:02 Q. Do you know when Google formed a basis as		
	92:03 to its belief that it did not infringe the '966		
	92:04 patent?		
	92:05 MR. NARDINELLI: Object to form. And		
	92:06 also, Tim, I will instruct you not to answer that		
	92:07 question on grounds of privilege.		
	92:08 THE WITNESS: Confirming I will follow		
	92:09 counsel's advice.		
92:11 - 94:02	**Kowalski, Tim 2023-05-08**	00:01:37	Kowalski_T.34
	92:11 Q. Did Google form a basis as to its belief		
	92:12 that it did not infringe the '966 patent prior to		
	92:13 receiving Sonos's draft complaint or after receiving		
	92:14 Sonos's draft complaint?		
	92:15 MR. NARDINELLI: Tim, instructing you not		
	92:16 to answer that question on grounds of privilege.		
	92:17 THE WITNESS: Confirming I'm going to		
	92:18 follow counsel's advice.		
	92:19 BY MR. KOLKER:		
	92:20 Q. As a general matter, what is Google's		
	92:21 policy for filing a legal pleading?		
	92:22 MR. NARDINELLI: Instruct you not to		
	92:23 answer on grounds of privilege.		
	92:24 THE WITNESS: Confirming I'm going to		
	92:25 follow counsel's advice.		
	93:01 BY MR. KOLKER:		
	93:02 Q. For a legal pleading in general to be		
	93:03 filed on Google's behalf, does Google have a policy		
	93:04 of requiring review by Google?		

Kowalski_T - As Played in Court 05/12/23

DESIGNATION	SOURCE	DURATION	ID
	93:05 MR. NARDINELLI: Instruct you not to		
	93:06 answer on grounds of privilege.		
	93:07 THE WITNESS: Confirming I'm going to		
	93:08 follow counsel's advice.		
	93:09 BY MR. KOLKER:		
	93:10 Q. When Google reviews legal pleadings prior		
	93:11 to filing, what is the scope of Google's review?		
	93:12 MR. NARDINELLI: Instruct you not to		
	93:13 answer on basis of privilege.		
	93:14 THE WITNESS: Confirming I'm going to		
	93:15 follow counsel's advice.		
	93:16 BY MR. KOLKER:		
	93:17 Q. Do you understand that there is a Rule 11		
	93:18 obligation to certify that factual contentions have		
	93:19 evidentiary support or, if specifically so		
	93:20 identified, will likely have evidentiary support		
	93:21 after a reasonable opportunity for further		
	93:22 investigation or discovery?		
	93:23 MR. NARDINELLI: If you know the answer to		
	93:24 that, Tim, you can answer yes or no.		
	93:25 THE WITNESS: I'm generally aware of		
	94:01 Rule 11. I am not a litigator, so it doesn't come		
	94:02 up in my daily practice.		
94:03 - 95:21	**Kowalski, Tim 2023-05-08**	00:01:35	Kowalski_T.35
	94:03 BY MR. KOLKER:		
	94:04 Q. Google states in this pleading that it		
	94:05 does not infringe the '966 patent.		
	94:06 Do you know if that contention had		
	94:07 evidentiary support at the time that this was filed?		
	94:08 MR. NARDINELLI: Instruct you not to		
	94:09 answer on grounds of privilege.		
	94:10 THE WITNESS: Confirming I'm going to		
	94:11 follow counsel's advice.		
	94:12 BY MR. KOLKER:		
	94:13 Q. Prior to filing this declaratory judgment		
	94:14 complaint, did Google have an opportunity to confirm		
	94:15 its contention that it did not have -- the '966		
	94:16 patent had evidentiary support?		
	94:17 MR. NARDINELLI: Instruct you not to		
	94:18 answer on grounds of privilege.		

Kowalski_T - As Played in Court 05/12/23

DESIGNATION	SOURCE	DURATION	ID

94:19	THE WITNESS: Confirming I'm going to
94:20	follow counsel's advice.
94:21	BY MR. KOLKER:
94:22	Q. As a general matter, would Google file a
94:23	pleading with the court if it did not believe the
94:24	statements were true?
94:25	MR. NARDINELLI: Instruction not to answer
95:01	on grounds of privilege. Also object to form.
95:02	THE WITNESS: Confirming I'm going to
95:03	follow counsel's advice.
95:04	BY MR. KOLKER:
95:05	Q. Would Google have filed this declaratory
95:06	judgment action if it did not believe the statements
95:07	that it did not infringe the '966 patent were true?
95:08	MR. NARDINELLI: Objection, calls for
95:09	speculation. I'll also instruct you, Tim, not to
95:10	answer on grounds of privilege.
95:11	THE WITNESS: Confirming I'm going to
95:12	follow counsel's advice.
95:13	BY MR. KOLKER:
95:14	Q. Would Google have filed this declaratory
95:15	judgment action if it did not have a sufficient
95:16	basis to believe the statements that it did not
95:17	infringe the '966 patent were true?
95:18	MR. NARDINELLI: Object to form. Instruct
95:19	you not to answer on grounds of privilege.
95:20	THE WITNESS: Confirming I'm going to
95:21	follow counsel's advice.

Sonos Affirmatives	00:10:30
TOTAL RUN TIME	**00:10:30**

Documents linked to video:
T8240

As Played in Court 5/16/23

Designation List Report

Chan, Christopher   **2022-11-29**

Sonos Affirmatives	00:19:12
Google Counters	00:00:56
TOTAL RUN TIME	**00:20:07**

Documents linked to video:

T128

T130

T138

T139

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ID: Chan_C

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DESIGNATION	SOURCE	DURATION	ID
11:09 - 11:14	**Chan, Christopher 2022-11-29**	00:00:14	Chan_C.1

11:09   Q.   Good morning, Mr. Chan.

11:10   A.   Good morning.

11:11   Q.   Could you please state and spell your full name

11:12   for the record.

11:13   A.   Christopher Chan, C-H-R-I-S-T-O-P-H-E-R,

11:14   C-H-A-N.

DESIGNATION	SOURCE	DURATION	ID
15:03 - 15:05	**Chan, Christopher 2022-11-29**	00:00:07	Chan_C.2

15:03   Q.   Okay. And you understand that Google has

15:04   designated you to testify on their behalf regarding

15:05   Topics 3 and 4 of this Notice; is that right?

DESIGNATION	SOURCE	DURATION	ID
15:09 - 15:23	**Chan, Christopher 2022-11-29**	00:00:48	Chan_C.3

15:09   THE WITNESS: Yes, I do.

15:10   Q.   BY MR. SULLIVAN: Okay. And more specifically,

15:11   you are Google's corporate designee on Topic 3 as it

15:12   relates to: One, Google's strategies for the sale and

15:13   marketing of the accused functionalities and the accused

15:14   hardware products; two, the competitive relationship

15:15   between the parties to the extent there is one; and 3,

15:16   metrics information regarding installs of the accused

15:17   software apps on the accused hardware devices and usage

15:18   of the accused functionalities.

15:19   Is that correct?

15:20   A.   Are you reading from part of the document?

15:21   Q.   No. I'm actually reading from representations

15:22   from Google's counsel that was filed.

15:23   A.   Got it.

DESIGNATION	SOURCE	DURATION	ID
16:01 - 16:01	**Chan, Christopher 2022-11-29**	00:00:02	Chan_C.4

16:01   THE WITNESS: Yes, this is my understanding.

DESIGNATION	SOURCE	DURATION	ID
16:02 - 16:10	**Chan, Christopher 2022-11-29**	00:00:28	Chan_C.5

16:02   Q.   BY MR. SULLIVAN: And you are Google's corporate

16:03   designee on Topic 4 as it relates to: One, customer

16:04   feedback, including comments and/or complaints regarding

16:05   the accused functionalities, to the extent such feedback

16:06   exists and is reasonably within Google's possession,

16:07   custody, and control; and two, metrics information

16:08   regarding usage of the accused functionalities.

16:09   Is that correct?

16:10   A.   That sounds right.

DESIGNATION	SOURCE	DURATION	ID
18:11 - 18:21	**Chan, Christopher 2022-11-29**	00:00:25	Chan_C.6

18:11	Q.	You were a
18:12		product manager at Google from May 2017 to October of
18:13		2020; is that right?
18:14	A.	Yes, that's correct.
18:15	Q.	And then you got promoted to senior product
18:16		manager?
18:17	A.	Yes, that's correct.
18:18	Q.	And that is your current title?
18:19	A.	Yes.
18:20	Q.	So what products are you responsible for as a
18:21		product manager at Google?

DESIGNATION	SOURCE	DURATION	ID
18:23 - 19:02	**Chan, Christopher 2022-11-29**	00:00:18	Chan_C.7

18:23		THE WITNESS: Are you asking right now or in
18:24		prior months or years?
18:25	Q.	BY MR. SULLIVAN: Let's start with when you were
19:01		just a product manager, and then I'll ask about if it's
19:02		changed in your role as senior product manager.

DESIGNATION	SOURCE	DURATION	ID
19:04 - 19:11	**Chan, Christopher 2022-11-29**	00:00:29	Chan_C.8

19:04		THE WITNESS: So when I was a product manager, I
19:05		worked on Google Home Max.
19:06	Q.	BY MR. SULLIVAN: Okay. Any other products?
19:07	A.	Also I worked on Nest Mini.
19:08	Q.	Any other products?
19:09	A.	Also I worked on Nest Audio.
19:10	Q.	How about Google Home; did you work on that
19:11		product?

DESIGNATION	SOURCE	DURATION	ID
19:13 - 19:23	**Chan, Christopher 2022-11-29**	00:00:43	Chan_C.9

19:13		THE WITNESS: I worked on software features that
19:14		impacted Google Home, but not the hardware product
19:15		itself.
19:16	Q.	BY MR. SULLIVAN: Are there any other products
19:17		that we didn't just discuss?
19:18	A.	I worked on software features for additional
19:19		products.
19:20	Q.	And what were those software features and
19:21		products?
19:22	A.	Software features included our group playback
19:23		functionality.

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DESIGNATION	SOURCE	DURATION	ID
19:24 - 20:02	**Chan, Christopher 2022-11-29**	00:00:15	Chan_C.10

19:24   Q.   Okay. Any other features?

19:25   A.   Our stream transfer functionality.

20:01   Q.   Anything else?

20:02   A.   Stereo pairing.

20:06 - 20:09	**Chan, Christopher 2022-11-29**	00:00:13	Chan_C.11

20:06   Q.   BY MR. SULLIVAN: Any other features?

20:07   A.   Marble.

20:08   Q.   And what is "Marble"?

20:09   A.   Marble is our on-device assistant technology.

20:13 - 20:18	**Chan, Christopher 2022-11-29**	00:00:27	Chan_C.12

20:13   A.   Marble is a software feature that rings the

20:14   intelligence of the Google assistant onto the device so

20:15   that users have a faster experience.

20:16   Q.   And did you work on any other features?

20:17   A.   Those were the primary ones that I can remember

20:18   from where I sit now.

20:19 - 20:20	**Chan, Christopher 2022-11-29**	00:00:06	Chan_C.13

20:19   Q.   And what products have you had responsibility

20:20   for as a senior product manager?

20:24 - 20:25	**Chan, Christopher 2022-11-29**	00:00:03	Chan_C.14

20:24   THE WITNESS: Currently, I am working on Pixel

20:25   tablet.

21:22 - 21:23	**Chan, Christopher 2022-11-29**	00:00:06	Chan_C.15

21:22   Q.   BY MR. SULLIVAN: Okay. Let's turn to the next

🔗 T128.1   21:23   exhibit in the folder. It's Exhibit 1261.

21:25 - 22:05	**Chan, Christopher 2022-11-29**	00:00:29	Chan_C.16

21:25   and I ask if you recognize that document.

22:01   A.   I do recognize this document.

22:02   Q.   Can you tell me what it is, please.

22:03   A.   This document is a reference to metrics that

22:04   kind of explain usage of cast functionality and multizone

22:05   functionality.

25:18 - 25:18	**Chan, Christopher 2022-11-29**	00:00:04	Chan_C.17

25:18   Q.   Why was Exhibit 1261 created?

25:20 - 25:22	**Chan, Christopher 2022-11-29**	00:00:07	Chan_C.18

25:20   THE WITNESS: My understanding was that it was

25:21   created as a reference to better understand the metrics

DESIGNATION	SOURCE	DURATION	ID
	25:22 that we will be reviewing.		
26:05 - 26:09	**Chan, Christopher 2022-11-29**	00:00:20	Chan_C.19
	26:05 I'm going to refer to computing devices as		
	26:06 devices such as mobile phones, tablets, laptops,		
	26:07 desktops, and other computing devices.		
	26:08 Is that okay?		
	26:09 A. Sounds good.		
40:04 - 40:05	**Chan, Christopher 2022-11-29**	00:00:06	Chan_C.20
🔗 T130.2	40:04 Q. BY MR. SULLIVAN: Okay. Let's take a look at		
	40:05 Exhibit 1263. And my first question is going to be: Do		
40:06 - 40:06	**Chan, Christopher 2022-11-29**	00:00:05	Chan_C.21
	40:06 you recognize this document?		
40:07 - 40:07	**Chan, Christopher 2022-11-29**	00:00:02	Chan_C.22
	40:07 A. This document looks vaguely familiar.		
40:17 - 40:20	**Chan, Christopher 2022-11-29**	00:00:13	Chan_C.23
	40:17 Q. BY MR. SULLIVAN: I'm sorry. Wait, let's start		
	40:18 with the first one that says "Releases 2019 to present."		
	40:19 A. Yes.		
	40:20 Q. What information is in that tab?		
40:22 - 41:05	**Chan, Christopher 2022-11-29**	00:00:31	Chan_C.24
	40:22 THE WITNESS: It appears to be the status of		
	40:23 Google Home app releases between 2019 and 2021.		
🔗 T130.4	40:24 Q. BY MR. SULLIVAN: All right. Let's go to the		
	40:25 next tab which says: "US install events (2019 to		
	41:01 present)."		
🔗 T130.4.1	41:02 Do you see that tab?		
	41:03 A. I do.		
	41:04 Q. Okay. What information is being captured in		
	41:05 this tab of the Exhibit 1263?		
41:08 - 41:09	**Chan, Christopher 2022-11-29**	00:00:06	Chan_C.25
	41:08 THE WITNESS: It would appear to be install		
	41:09 events of the Google Home app by country.		
60:05 - 60:06	**Chan, Christopher 2022-11-29**	00:00:04	Chan_C.26
🔗 T138.2	60:05 Q. BY MR. SULLIVAN: Okay. Let's take a look at		
	60:06 Exhibit 1271, please. And there are a lot of tabs here		
60:07 - 60:10	**Chan, Christopher 2022-11-29**	00:00:12	Chan_C.27
	60:07 so I want to make sure you click over to the -- to see		

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DESIGNATION	SOURCE	DURATION	ID
	60:08 all the tabs.		
	60:09 My first question is going to be: Do you		
	60:10 recognize this document?		
60:12 - 60:17	**Chan, Christopher 2022-11-29**	00:00:20	Chan_C.28
🔗 T138.2.3	60:12 THE WITNESS: I don't recognize this document.		
	60:13 Q. BY MR. SULLIVAN: Let's take a look at the first		
	60:14 tab. It says "GPM First Time Downloads."		
	60:15 Do you see that?		
	60:16 A. I see that.		
	60:17 Q. What does "GPM" refer to?		
60:19 - 60:22	**Chan, Christopher 2022-11-29**	00:00:09	Chan_C.29
🔗 T138.2.1	60:19 THE WITNESS: It would appear to refer to Google		
	60:20 Play music.		
🔗 T138.2.2	60:21 Q. BY MR. SULLIVAN: And what does "first-time		
	60:22 downloads" refer to?		
60:24 - 61:02	**Chan, Christopher 2022-11-29**	00:00:15	Chan_C.30
	60:24 THE WITNESS: I'm not familiar with that		
	60:25 concept.		
	61:01 Q. BY MR. SULLIVAN: Do you recollect if a		
	61:02 first-time download is different than an install?		
61:05 - 61:05	**Chan, Christopher 2022-11-29**	00:00:01	Chan_C.31
	61:05 THE WITNESS: I do not.		
62:13 - 62:14	**Chan, Christopher 2022-11-29**	00:00:04	Chan_C.32
🔗 T139.2	62:13 Q. BY MR. SULLIVAN: All right. Let's take a look		
	62:14 at Exhibit 1272.		
62:15 - 62:16	**Chan, Christopher 2022-11-29**	00:00:04	Chan_C.33
	62:15 The first question's going to be: Have you ever		
	62:16 seen this document before?		
62:18 - 62:21	**Chan, Christopher 2022-11-29**	00:00:17	Chan_C.34
	62:18 THE WITNESS: Insofar as it appears similar to a		
	62:19 prior exhibit.		
	62:20 Q. BY MR. SULLIVAN: Would that prior exhibit be		
	62:21 Exhibit 1263?		
62:24 - 62:24	**Chan, Christopher 2022-11-29**	00:00:01	Chan_C.35
	62:24 THE WITNESS: Yes.		
63:20 - 63:23	**Chan, Christopher 2022-11-29**	00:00:13	Chan_C.36
🔗 T139.6.1	63:20 Q. BY MR. SULLIVAN: And if we turn back to		

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DESIGNATION	SOURCE	DURATION	ID
	63:21 Exhibit 1272, this appears to be an update of		
	63:22 Exhibit 1263 that goes through November of 2022; is that		
	63:23 right?		
64:01 - 64:06	**Chan, Christopher 2022-11-29**	00:00:20	Chan_C.37
	64:01 THE WITNESS: Not looking at the specific		
	64:02 numbers, but I see that November 2022 is the last date in		
	64:03 the US Install Events spreadsheet or sheet.		
	64:04 Q. BY MR. SULLIVAN: Okay. Would your answers for		
	64:05 the questions I asked with respect to Exhibit 1263 be the		
	64:06 same for Exhibit 1272?		
64:09 - 64:10	**Chan, Christopher 2022-11-29**	00:00:05	Chan_C.38
	64:09 THE WITNESS: I can't recall my answers for the		
	64:10 prior spreadsheet.		
64:11 - 64:13	**Chan, Christopher 2022-11-29**	00:00:19	Chan_C.39
	64:11 Q. BY MR. SULLIVAN: Do you see anything in		
	64:12 Exhibit 1272 that's different from Exhibit 1263 other		
	64:13 than the update from February 2022 to November 2022?		
64:16 - 64:20	**Chan, Christopher 2022-11-29**	00:00:15	Chan_C.40
	64:16 THE WITNESS: I see no obvious differences in my		
	64:17 current review of the spreadsheet.		
	64:18 Q. BY MR. SULLIVAN: So, again, this is -- this		
	64:19 document is dealing with install events for the Android		
	64:20 version of the Google Home app; correct?		
64:22 - 64:23	**Chan, Christopher 2022-11-29**	00:00:05	Chan_C.41
	64:22 THE WITNESS: That would appear to be the case		
	64:23 in reviewing the install event sheet.		
67:23 - 67:24 ✗ Clear	**Chan, Christopher 2022-11-29**	00:00:02	Chan_C.42
	67:23 Q. BY MR. SULLIVAN: So smartphones have a		
	67:24 processor; right?		
68:01 - 68:04	**Chan, Christopher 2022-11-29**	00:00:09	Chan_C.43
	68:01 THE WITNESS: They have at least one processor,		
	68:02 yes.		
	68:03 Q. BY MR. SULLIVAN: Do tablets also have at least		
	68:04 one processor?		
68:06 - 68:09	**Chan, Christopher 2022-11-29**	00:00:09	Chan_C.44
	68:06 THE WITNESS: Tablets have at least one		
	68:07 processor, yes.		
	68:08 Q. BY MR. SULLIVAN: And how about laptops and		

DESIGNATION	SOURCE	DURATION	ID
	68:09 desktops; do they have at least one processor?		
68:12 - 68:15	**Chan, Christopher 2022-11-29**	00:00:08	Chan_C.45
	68:12 THE WITNESS: My understanding is that laptops		
	68:13 and desktops also have processors.		
	68:14 Q. BY MR. SULLIVAN: How about Chromebooks; do they		
	68:15 have at least one processor?		
68:17 - 68:20	**Chan, Christopher 2022-11-29**	00:00:18	Chan_C.46
	68:17 THE WITNESS: In that a Chromebook is a type of		
	68:18 laptop, yes.		
	68:19 Q. BY MR. SULLIVAN: Is a device with a processor		
	68:20 required to run the Google Home app?		
68:23 - 68:25	**Chan, Christopher 2022-11-29**	00:00:07	Chan_C.47
	68:23 THE WITNESS: I believe so.		
	68:24 Q. BY MR. SULLIVAN: Is a device with a processor		
	68:25 required to run the YouTube apps?		
69:02 - 69:02	**Chan, Christopher 2022-11-29**	00:00:02	Chan_C.48
	69:02 THE WITNESS: That is my understanding, yes.		
69:21 - 69:22	**Chan, Christopher 2022-11-29**	00:00:02	Chan_C.49
	69:21 Q. BY MR. SULLIVAN: So smartphones have memory;		
	69:22 right?		
69:24 - 70:01	**Chan, Christopher 2022-11-29**	00:00:05	Chan_C.50
	69:24 THE WITNESS: Smartphones do have memory, yes.		
	69:25 Q. BY MR. SULLIVAN: So do tablets and computers;		
	70:01 right?		
70:04 - 70:04	**Chan, Christopher 2022-11-29**	00:00:02	Chan_C.51
	70:04 THE WITNESS: That is my understanding, yes.		
71:12 - 71:13	**Chan, Christopher 2022-11-29**	00:00:04	Chan_C.52
	71:12 Q. BY MR. SULLIVAN: Have you ever installed any		
	71:13 apps onto a Pixel tablet?		
71:15 - 71:15	**Chan, Christopher 2022-11-29**	00:00:01	Chan_C.53
	71:15 THE WITNESS: I have.		
73:12 - 73:14	**Chan, Christopher 2022-11-29**	00:00:05	Chan_C.54
	73:12 Q. BY MR. SULLIVAN: Okay. What's your definition		
	73:13 of memory?		
	73:14 A. So --		
73:16 - 73:18	**Chan, Christopher 2022-11-29**	00:00:12	Chan_C.55
	73:16 THE WITNESS: There is short-term memory, which		

Chan_C - As Played in Court 5/16/23

DESIGNATION	SOURCE	DURATION	ID
	73:17 is represented or used as RAM, and long-term memory, 73:18 which is more storage space.		
75:18 - 75:19	**Chan, Christopher 2022-11-29**	00:00:06	Chan_C.56
	75:18 Q. BY MR. SULLIVAN: Do all smartphones and tablets 75:19 and computers have a storage system?		
75:22 - 76:01	**Chan, Christopher 2022-11-29**	00:00:26	Chan_C.57
	75:22 THE WITNESS: I'm not entirely sure. 75:23 Q. BY MR. SULLIVAN: How about smartphones, 75:24 tablets, and laptops where the Google Home app or one of 75:25 the YouTube apps can be installed; do they have a storage 76:01 system?		
76:04 - 76:05	**Chan, Christopher 2022-11-29**	00:00:05	Chan_C.58
	76:04 THE WITNESS: Most phones, tablets, and laptops 76:05 I've seen have storage.		
78:18 - 78:21	**Chan, Christopher 2022-11-29**	00:00:11	Chan_C.59
	78:18 Q. BY MR. SULLIVAN: Yeah. I'm just talking about 78:19 the Google Home app and the YouTube apps. When you 78:20 install those on a computing device, they're stored on 78:21 the computing device; right?		
78:23 - 78:23	**Chan, Christopher 2022-11-29**	00:00:02	Chan_C.60
	78:23 THE WITNESS: Often, they are.		
80:06 - 80:08	**Chan, Christopher 2022-11-29**	00:00:09	Chan_C.61
	80:06 So, again, going back to my original question: 80:07 When it's installed, these apps are stored on the 80:08 computing devices; right?		
80:11 - 80:12	**Chan, Christopher 2022-11-29**	00:00:04	Chan_C.62
	80:11 THE WITNESS: I think so, but I'm not entirely 80:12 confident on that assertion.		
90:16 - 90:18	**Chan, Christopher 2022-11-29**	00:00:09	Chan_C.63
	90:16 Does Google instruct users to download the 90:17 Google Home app onto their computing devices in order to 90:18 set up and use Google's speakers?		
90:22 - 91:05	**Chan, Christopher 2022-11-29**	00:00:32	Chan_C.64
	90:22 THE WITNESS: When setting up a smart speaker, 90:23 there is a quick-start guide in the packaging that 90:24 instructs users to set up and download the Google Home 90:25 app. And then in addition to that, when they plug in a		

Sonos Affirmatives   **Google Counters**

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DESIGNATION	SOURCE	DURATION	ID
	91:01 speaker, the Google assistant's voice also instructs		
	91:02 users to download the Google Home app.		
	91:03 Q. BY MR. SULLIVAN: Does the Google Home app need		
	91:04 to be downloaded onto users' computer devices in order to		
	91:05 set up and use Google's speakers?		
91:08 - 91:11	**Chan, Christopher 2022-11-29**	00:00:14	Chan_C.65
	91:08 THE WITNESS: Access to the Home app is required		
	91:09 to set up a Google smart speaker.		
	91:10 Q. BY MR. SULLIVAN: Is the Google Home app		
	91:11 required to create a speaker group?		
91:13 - 91:16	**Chan, Christopher 2022-11-29**	00:00:16	Chan_C.66
	91:13 THE WITNESS: Yes. The Google Home app is		
	91:14 required to create a static speaker group.		
	91:15 Q. BY MR. SULLIVAN: Does Google encourage people		
	91:16 to download the Google Home app?		
91:19 - 91:21	**Chan, Christopher 2022-11-29**	00:00:09	Chan_C.67
	91:19 THE WITNESS: So both the quick-start guide and		
	91:20 the smart speaker itself both prompt the user to download		
	91:21 and install the Home app to set it up.		
98:13 - 98:14	**Chan, Christopher 2022-11-29**	00:00:04	Chan_C.68
	98:13 Q. BY MR. SULLIVAN: Does Google provide		
	98:14 instructions on how to use the Google Home app?		
98:17 - 98:20	**Chan, Christopher 2022-11-29**	00:00:08	Chan_C.69
	98:17 THE WITNESS: I'm aware of support materials for		
	98:18 the Google Home app.		
	98:19 Q. BY MR. SULLIVAN: What support materials are		
	98:20 those?		
98:22 - 98:25	**Chan, Christopher 2022-11-29**	00:00:06	Chan_C.70
	98:22 THE WITNESS: I'm aware of online support		
	98:23 materials.		
	98:24 Q. BY MR. SULLIVAN: Can you tell me what those		
	98:25 are?		
99:02 - 99:04	**Chan, Christopher 2022-11-29**	00:00:08	Chan_C.71
	99:02 THE WITNESS: I'm generally aware of online		
	99:03 support materials that allow you to search for specific		
	99:04 features supported by the Google Home app.		
107:12 - 107:14	**Chan, Christopher 2022-11-29**	00:00:07	Chan_C.72
	107:12 Q. BY MR. SULLIVAN: Okay. So it's your		

DESIGNATION	SOURCE	DURATION	ID
	107:13 understanding, just to circle back, that Google does not		
	107:14 compete with Sonos in the home audio market; right?		
107:16 - 107:18	**Chan, Christopher 2022-11-29**	00:00:06	Chan_C.73
	107:16 THE WITNESS: I don't view them as directly		
	107:17 competitive. I understand that there is some overlapping		
	107:18 functionality.		
109:03 - 109:04	**Chan, Christopher 2022-11-29**	00:00:05	Chan_C.74
	109:03 Q. Okay. And you're saying the Sonos 1 doesn't		
	109:04 compete with any of Google's smart speakers?		
109:06 - 109:20	**Chan, Christopher 2022-11-29**	00:01:09	Chan_C.75
	109:06 THE WITNESS: I can see that for some -- some		
	109:07 users, they might be deciding between Sonos 1 and Nest		
	109:08 Audio, but the price points are quite different, and		
	109:09 ultimately, they are different ecosystems. So I don't		
	109:10 know how much of a competition it actually is.		
	109:11 Q. BY MR. SULLIVAN: What do you mean they're in		
	109:12 different ecosystems?		
	109:13 A. So what I mean by that is the Sonos devices are		
	109:14 in the Sonos ecosystem and that Nest smart speakers are		
	109:15 in the Nest ecosystem.		
	109:16 Q. What do you mean by the term "ecosystem"?		
	109:17 A. By "ecosystem," I mean a set of devices under		
	109:18 the same brand.		
	109:19 Q. Does the ecosystem affect what speaker a user		
	109:20 purchases?		
109:23 - 110:02	**Chan, Christopher 2022-11-29**	00:00:18	Chan_C.76
	109:23 THE WITNESS: I think that's the hope, but I		
	109:24 haven't seen much data in regards to the Nest ecosystem.		
	109:25 Q. BY MR. SULLIVAN: So if somebody buys a Nest		
	110:01 speaker, they become part of the Nest ecosystem; is that		
	110:02 right?		
110:05 - 110:09	**Chan, Christopher 2022-11-29**	00:00:12	Chan_C.77
	110:05 THE WITNESS: That's the intent, but I haven't		
	110:06 seen strong data to support it.		
	110:07 Q. BY MR. SULLIVAN: If someone buys a Sonos		
	110:08 speaker, then they would be in the Sonos ecosystem;		
	110:09 right?		
110:11 - 110:15	**Chan, Christopher 2022-11-29**	00:00:17	Chan_C.78
	110:11 THE WITNESS: That sounds right.		

Chan_C - As Played in Court 5/16/23

DESIGNATION	SOURCE	DURATION	ID
	110:12 Q. BY MR. SULLIVAN: And if they're in the Nest		
	110:13 ecosystem, when they buy their second speaker, they'd		
	110:14 likely purchase a Nest speaker for that second speaker;		
	110:15 right?		
110:17 - 110:22	**Chan, Christopher 2022-11-29**	00:00:19	Chan_C.79
	110:17 THE WITNESS: That's the hope, but I haven't		
	110:18 seen strong data that suggests the narrative that you are		
	110:19 describing.		
	110:20 Q. BY MR. SULLIVAN: Well, are you aware of anyone		
	110:21 buying a Nest speaker and then turning around and buying		
	110:22 a Sonos speaker as a second speaker?		
110:24 - 111:01	**Chan, Christopher 2022-11-29**	00:00:11	Chan_C.80
	110:24 THE WITNESS: I'm sure they exist.		
	110:25 Q. BY MR. SULLIVAN: You're sure they exist, but I		
	111:01 thought you said that they don't compete; right?		
111:03 - 111:09	**Chan, Christopher 2022-11-29**	00:00:28	Chan_C.81
	111:03 THE WITNESS: Yes, that that was my like general		
	111:04 view about competition.		
	111:05 Q. BY MR. SULLIVAN: So Google and Sonos don't		
	111:06 compete, but you're aware of the fact that somebody that		
	111:07 bought a Google speaker as a first speaker may buy a		
	111:08 Sonos speaker as a second speaker.		
	111:09 Did I get that right?		
111:11 - 111:13	**Chan, Christopher 2022-11-29**	00:00:07	Chan_C.82
	111:11 THE WITNESS: I was saying I'm sure they		
	111:12 probably exist, but I have not seen concrete data to that		
	111:13 effect.		
111:25 - 112:01	**Chan, Christopher 2022-11-29**	00:00:03	Chan_C.83
	111:25 THE WITNESS: Well, I don't know if I agree with		
	112:01 that.		
112:05 - 112:06	**Chan, Christopher 2022-11-29**	00:00:04	Chan_C.84
	112:05 THE WITNESS: I'm not willing to make that		
	112:06 claim.		
113:07 - 113:19	**Chan, Christopher 2022-11-29**	00:00:46	Chan_C.85
	113:07 Q. BY MR. SULLIVAN: No. Okay. What's your		
	113:08 definition of competition?		
	113:09 A. So I think of competition as when a person is		
	113:10 considering a specific product, they have a number of		

DESIGNATION	SOURCE	DURATION	ID

113:11   options in kind of a competitive set, and they narrow in

113:12   on the options and then ultimately pick one. Whatever

113:13   those options were, were competitors.

113:14 Q. Okay. So using that definition of competition,

113:15   I'll go back to my original question.

113:16   Well, let me phrase the question this way.

113:17   Using that definition of competition, does Google compete

113:18   with Sonos in either the home audio market or the smart

113:19   speaker market?

113:21 - 113:24	**Chan, Christopher 2022-11-29**	00:00:11	Chan_C.86

113:21   THE WITNESS: I think the answer depends.

113:22 Q. BY MR. SULLIVAN: How does it depend?

113:23 A. It depends on whether we're talking about home

113:24   audio or smart speaker.

115:23 - 115:24	**Chan, Christopher 2022-11-29**	00:00:10	Chan_C.87

115:23   Your knowledge about whether Google and Sonos

115:24   compete in the home audio market, what is that based on?

115:25 - 116:17	**Chan, Christopher 2022-11-29**	00:01:01	Chan_C.88

115:25 A. It's based on some level of reviews and

116:01   reviewing those.

116:02 Q. What reviews?

116:03 A. Sometimes people write reviews when we launch

116:04   our products.

116:05 Q. And what do they say in those reviews that would

116:06   help you determine whether Google competes with Sonos in

116:07   the home audio market?

116:08 A. Sometimes they'll reference Sonos products in

116:09   those reviews.

116:10 Q. And these are reviews of your products?

116:11 A. I think I've seen them before, yes.

116:12 Q. Okay. So people are -- are reviewing your

116:13   product and mentioning Sonos' products; is that what

116:14   you're saying?

116:15 A. They will mention other products as well.

116:16 Q. Wouldn't that indicate that there's competition

116:17   between the two?

116:19 - 116:20	**Chan, Christopher 2022-11-29**	00:00:06	Chan_C.89

116:19   THE WITNESS: That would indicate that the

116:20   reviewer sees some level of competition between the two.

Chan_C - As Played in Court 5/16/23

DESIGNATION	SOURCE	DURATION	ID
117:22 - 117:24	**Chan, Christopher 2022-11-29**	00:00:10	Chan_C.90

117:22 Q. BY MR. SULLIVAN: And do you -- do you believe

117:23   that Google competes with Sonos in the smart speaker

117:24   market? Again, I'm using your definition of competition.

118:01 - 118:02	**Chan, Christopher 2022-11-29**	00:00:04	Chan_C.91

118:01   THE WITNESS: In certain cases, I believe there

118:02   is some competition, yes.

125:11 - 125:12	**Chan, Christopher 2022-11-29**	00:00:04	Chan_C.92

125:11 Q. BY MR. SULLIVAN: Do you have any idea of

125:12   whether Google's smart speakers are profitable?

125:14 - 125:16	**Chan, Christopher 2022-11-29**	00:00:08	Chan_C.93

125:14   THE WITNESS: Not really.

125:15 Q. BY MR. SULLIVAN: Would Google sell a product

125:16   that wasn't profitable?

125:18 - 125:22	**Chan, Christopher 2022-11-29**	00:00:16	Chan_C.94

125:18   THE WITNESS: I can't speak to the hypothetical,

125:19   but I can say that Google encourages all of our hardware

125:20   products to be run sustainably.

125:21 Q. BY MR. SULLIVAN: And how does Google make money

125:22   from its smart speakers?

125:24 - 125:25	**Chan, Christopher 2022-11-29**	00:00:03	Chan_C.95

125:24   THE WITNESS: I don't know that Google makes

125:25   money from its smart speakers.

Sonos Affirmatives	00:19:12
Google Counters	00:00:56
TOTAL RUN TIME	**00:20:07**

Documents linked to video:

T128

T130

T138

T139